**FACULTY OF INFORMATICS
AND INFORMATION TECHNOLOGIES**

www.fiit.stuba.sk

ANNUAL REPORT
2010

Contents

1   Message from the dean

The evaluation of the Long term strategy for the year 2010 showed that almost all goals for this year have been successfully achieved. It of course does not mean that we are satisfied with the current situation in our main activities in research and in education.

In research we have slight improvement in scientific publications but we would like to have a better structure of them.

In education we made deeper innovation of our study program Computer Systems and Networks with respect to further merging Information and Communication technologies which resulted to the Study Program replacement by the Study Program Computer and Communication Systems and Networks. We hope that this innovation will lead to higher interest from the side of new students and it fulfils expectation from the side of ICT companies. We are proud that our graduates have no problem to find suitable job.

The Report shows the results achieved in research that is of high priority at Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava (FIIT STU). Interlink of research and education is not only declared but also documented by research activities of our students. Research results of our students were presented at the 6th Student Research Conference IIT.SRC 2010 organised by the Faculty.

In the year 2010 Prof. Bebo White (SLAC National Accelerator Laboratory at Stanford University) visited the Faculty and except the lecture devoted to web technologies for the staff and students of the Faculty and broader IT community, he had interesting meetings with our students and participants of the IIT.SRC 2010 including special lecture for the Conference. The visit has been sponsored by Tatra banka Foundation and I would like to express our thanks to Tatra banka for the support.

I would like to let all who are not living here in Mlynska Dolina and cannot see a progress in building the building of FIIT STU to know that building is coming to a final stage. We hope that we will start new academic year 2011/12 in this new building. Please keep us fingers!

January 2010

December 2010

The Report shows the current state the Faculty has achieved in education, research and cooperation with business partners. The reader can find the study programmes offered by the Faculty and the research projects realized at the Faculty. We recommend reading also previous Annual reports to see progress in education and research.

Prof. Ľudovít Molnár
Dean of the FIIT STU

2 Faculty Management Bodies

According to the Act No. 131 of February 21, 2002 (the University Code and Amendments and Supplements to some Acts and subsequent acts that have amended them), the faculty management is to be formed out of its academic community members. It is composed of lecturers and research workers (representing the employee part of the academic community of the faculty) and of students (representing the student part of the academic community of the faculty).

According to the University Code, academic management bodies of a faculty are the following:

a) the Academic Senate of the faculty,

b) the Dean,

c) the Scientific Board of the faculty,

d) the Disciplinary Commission of the faculty for students.

2.1 Academic Senate of the Faculty

The Academic Senate of a faculty is a representative body of the faculty. It comprises of the employee part and the student part.

Members of the Academic Senate in 2010

Presidium of the Academic Senate
`presidium@as.fiit.stuba.sk`

>   *Pavol Návrat, Professor*
>   chair
>   `chair@as.fiit.stuba.sk`
>
>   *Katarína Jelemenská*
>   chair of the faculty section
>
>   *Jaroslav Abaffy*
>   chair of the student section

Secretary of the Academic Senate
`secretary@as.fiit.stuba.sk`

>   Mária Hricová

Members of the faculty section of the Academic Senate
`staff@as.fiit.stuba.sk`

Ján Hudec

Ladislav Hudec, Assoc. Professor

Daniela Chudá

Miroslav Galbavý

Katarína Jelemenská

Ivan Kotuliak (till Sept. 2010)

Pavol Návrat, Professor

Juraj Štefanovič

Peter Trúchly (from Sept. 2010)

Members of the student section of the Academic Senate
`students@as.fiit.stuba.sk`

Jaroslav Abaffy

Celestín Černák (till June 2010)

Eva Danillová (till Feb. 2010)

Andrej Folgeton (from Sept. 2010)

Alojz Gomola (till June 2010)

Peter Pištek (from March 2010)

Veronika Štrbáková (from Sept. 2010)

Activities of the Academic Senate of the Faculty in 2010

The Academic Senate of the Faculty of Informatics and Information Technologies in 2010

- discussed the proposal of Rules for forming study plans, conditions for continuation of study and for regular completion of study, and recommended study plans for each study programme presented by the Dean,
- approved new vice-deans (Ivan Kotuliak, Assoc. Professor and Tibor Krajčovič, Assoc. Professor), presented by the Dean,
- approved the additional conditions for admission to the study programmes offered by the faculty, presented by the Dean,
- approved the budget of the Faculty, presented by the Dean,
- approved the annual report on activities and annual statement on economic management of the Faculty, presented by the Dean,
- submitted the annual report on its activity to the academic community of the Faculty.

Prof. Pavol Návrat
Chair Academic Senate FIIT STU

2.2 Dean

The Dean is the representative of the Faculty who manages, represents and acts on behalf of the faculty. The current Dean was elected by the Academic Senate of the Faculty in its meeting held on October 19, 2007 and appointed by the Rector to his office on Decem-

ber 2, 2007 for a four year office term. Dean inauguration ceremony was held on March 11, 2008. Vice-deans were approved by the Academic Senate in January 2008. Since October 1, 2010 Ivan Kotuliak, Assoc. Professor has been appointed as the Vice Dean for Material Resources.

> *Ľudovít Molnár, Professor*
> Dean
> `dean@fiit.stuba.sk`

> *Mária Bieliková, Professor*
> Vice-Dean for Research and Human Resources
> `vicedean_research@fiit.stuba.sk`

> *Pavel Čičák, Assoc. Professor*
> Vice-Dean for National and International Relations and for Public Relations
> `vicedean_cooperation@fiit.stuba.sk`

> *Margaréta Kotočová, Assoc. Professor*
> Vice-Dean for Education
> `vicedean_education@fiit.stuba.sk`

> *Tibor Krajčovič, Assoc. Professor*
> Vice-Dean for New Building Material Resources
> `vicedean_development@fiit.stuba.sk`

> *Ivan Kotuliak, Assoc. Professor*
> Vice-Dean for Material Resources
> `vicedean_development@fiit.stuba.sk`

2.3 Scientific Board of the Faculty

Members of the Scientific Board in 2010

Chair of the Scientific Board
> Ľudovít Molnár, Professor

Deputy chair of the Scientific Board
> Mária Bieliková, Professor

Members from the academic community of the Slovak University of Technology
> Mária Bieliková, Professor
>
> Pavel Čičák, Assoc. Professor
>
> Peter Farkaš, Professor
>
> Elena Gramatová, Assoc. Professor
>
> Pavol Horváth, Professor
>
> Ladislav Hudec, Assoc. Professor
>
> Margaréta Kotočová, Assoc. Professor
>
> Štefan Kozák, Professor
>
> Tibor Krajčovič, Assoc. Professor
>
> Ľudovít Molnár, Professor
>
> Oliver Moravčík, Professor

Ján Murgaš, Professor

Pavol Návrat, Professor

Jiří Pospíchal, Professor

Gregor Rozinaj, Assoc. Professor

Peter Volauf, Assoc. Professor

External members

Milan Češka, Professor – Brno University of Technology

Ladislav Hluchý, Assoc. Professor – Institute of Inf., Slovak Academy of Sciences

Ivan Kalaš, Professor – Comenius University in Bratislava

Josef Kolář, Assoc. Professor – Czech Technical University in Prague

Karol Matiaško, Professor – University of Žilina

Jiří Šafařík, Professor – University of West Bohemia in Pilsen

Jaroslav Šušol, Assoc. Professor – Comenius University in Bratislava

Liberius Vokorokos, Professor – Technical University in Košice

Honourable members

Milan Kolesár, Professor

Activities of the Scientific Board of the Faculty in 2010

The Scientific Board of the Faculty of Informatics and Information Technologies in 2010:

- discussed an update of the long-term strategy of the Faculty development for the 2010 prepared in accordance with the long-term strategy of the Slovak University of Technology in Bratislava,
- evaluated the level of the Faculty regarding its educational activity and activities in the field of science and technology,
- discussed and approved the proposal of the study programmes for the academic year 2010/11 offered by the Faculty,
- endorsed other experts with the right to conduct Final examinations in the study programmes offered by the Faculty (in accordance with the University Code),
- endorsed members of the Board of Specialists for doctoral study programmes,
- endorsed supervisors for doctoral study programmes (in accordance with the University Code),
- discussed the habilitation thesis and results both educational and research presented by Dr. Ivan Kotuliak and made decision to confer the scientific-pedagogical degree of "docent" in the field Applied Informatics,
- conferred Wolfgang Kempelen Medal for momentous contribution to research and development in informatics and information technologies in connection to the Slovak University of Technology in Bratislava to:
  - Peter Weber
  - Bebo White

- conferred the academic degree "philosophie doctor" to:
  - Marcel Baláž (Applied Informatics)
  - Juraj Ďuďák (Computer Hardware and Systems)
  - Miroslav Líška (Program and Information Systems)
  - Miroslav Mánik (Applied Informatics)
  - Emil Gatial (Applied Informatics)
  - Lenka Skovajsová (Applied Informatics)

<div align="right">

Prof. Ľudovít Molnár
Chair Scientific Board FIIT STU

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2.4 Disciplinary Commission of the Faculty for Students

The Disciplinary Commission of a faculty according to the University Code shall discuss misdemeanours of students and submit the proposal to the Dean who will resolve on it.

Members of the Disciplinary Commission for Students in 2010

Chair of the Disciplinary Commission of the Faculty for Students

Ladislav Hudec, Assoc. Professor

Members of the Disciplinary Commission of the Faculty for Students

Juraj Štefanovič, PhD.

Ivan Kapustík

Peter Vojtek – student of the doctoral degree programme (till June 2010)

Ľubomír Varga – student of the doctoral degree programme (from June 2010)

Valéria Harvanová – student of the master degree programme

Vladimír Michalec – student of the bachelor degree programme (till June 2010)

Matúš Michalko – student of the bachelor degree programme (from June 2010)

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Assoc. Prof. Ladislav Hudec
Chair Disciplinary Commission for Students FIIT STU

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3   Study

3.1 Undergraduate Study (Bc)

In 2010 three accredited study programmes with regular length three years were offered:

- *Informatics*
- *Computer and Communication Systems and Networks*, new programme since academic year 2009/10 which substitutes older programme *Computer Systems and Networks*
- *Computer Systems and Networks*, programme is only for students, which started their study in this programme.

The following table shows the numbers of full-time bachelor programme students throughout the study (from the first to the final year) for last eight years.

Numbers of the full-time bachelor programme students

		1st year	2nd year	3rd year	4th year[1]
Academic year	2003/2004[1]	150	103	123	134
	2004/2005	333 (216/117)	112 (60/52)	95[1]	156
	2005/2006	344 (230/114)	262 (176/86)	91 (54/37)	92
	2006/2007	332 (221/111)	269 (192/77)	246 (163/83)	19
	2007/2008	290 (195/95)	272 (188/84)	266 (186/80)	1
	2008/2009	265 (181/84)	229 (159/70)	308 (215/93)	-
	2009/2010	291 (189/102)	169 (124/45)	244 (170/74)	-
	2010/2011	253 (172/81)	196 (143/53)	190 (141/49)	-

Note: First number in parentheses refers to number students in study programme Informatics, second number refers to number students in study programmes Computer Systems and Networks or Computer and Communication Systems and Networks.

On the course we have 5 overseas students.

In June 2010 the students defended their bachelor theses and passed the final examination. The number of all graduates was 185. From it, there were 134 in study programme Informatics and 51 in study programme Computer Systems and Networks.

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[1] Only the students in study programme Informatics.

The following students were conferred awards for their excellent study results:

–   *"Magna cum laude"*: Anton Benčič, Timotej Betina, Maroš Ďuríček,
    Lukáš Kavický, Peter Korenek, Milan Laslop, Róbert Móro, Jana Pazúriková,
    Ivan Polko, Ivan Srba, Miroslav Šimulčík, Tomáš Uherčík, Maroš Unčík,
    Ivan Valenčík

–   *"Cum laude"*: Peter Kajan, Ján Romaňák, Ondrej Urban, Tomáš Vlček

–   *Dean's Award for Excellent Bachelor Thesis*: Timotej Betina, Maroš Ďuríček,
    Lukáš Kavický, Ivan Srba

–   *Dean's Commendatory Letter for Bachelor Thesis:* Anton Benčič, Jakub Bendžala,
    Timotej Betina, Matej Budzel, Michal Dulačka, Maroš Ďuríček, Branislav Hašto,
    Ján Chlpek, Michal Jarkovský, Lukáš Kavický, Peter Korenek, Andrej Kumor,
    Milan Laslop, Andrej Lukeš, Jana Pazúriková, Roman Pipík, Martin Prázdnovský,
    Ivan Srba, Martin Svetlík, Miroslav Šimulčík, Tomáš Uherčík, Maroš Unčík,
    Ivan Valenčík, Tomáš Vlček

678 applicants took part in the entrance examination to bachelor study programmes
(488 applicants for study programme Informatics, 190 applicants for study programme
Computer and Communication Systems and Networks). 479 applicants were offered ad-
mission (322 Informatics, 157 Computer Systems and Networks), 253 out of them actually
made use of it and were enrolled (172 Informatics, 81 Computer Systems and Networks).

3.2 Master Study (Ing)

In 2010, FIIT STU offered three accredited study programmes with regular length two or
three years[2]:

–   *Software Engineering (SI),*
–   *Computer and Communication Systems and Networks* (CCSN),
–   *Information Systems (IS)*.

The following table shows the numbers of full-time master programme students through-
out the study for last eight years.

Numbers of the full-time master programme SI, CSN (CCSN), IS students

		all	SI	CSN or CCSN	IS	Informatics*
Academic year	2003/2004	151	-	-	-	151
	2004/2005	182	72	38	-	72
	2005/2006	231	119	73	39	-
	2006/2007	290	124	106	60	-
	2007/2008	326	141	113	72	-
	2008/2009	362	154	110	98	-
	2009/2010	394	160	128	106	-
	2010/2011	395	157	126	112	-

Note: * Only the students in old study programme Informatics.

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[2] Three years for students who have not obtained their first degree in related field.

On the course we have one overseas student.

In these study programmes 138 students graduated in June 2010 (66 in Software Engineering, 59 in Computer and Communication Systems and Networks, 35 in Information Systems:

The following students were conferred awards for their excellent results[3]:

- "*Magna cum laude*": Michal Olšovský

- *"Cum laude":* Igor Andruška, Peter Fillo, Michal Holub, Juraj Kollár,
  Michal Kottman, Peter Smolinský, Jakub Šimko, Ján Turoň

- *Dean′s Award for Excellent Master Thesis*:
  Michal Holub, Stanislav Ochotnický, Michal Olšovský, Jakub Šimko

- *Slovak Academy of Sciences Award for Excellent Master Thesis*:
  Pavol Bača, Tomáš Kramár

- *Institute of Inf., Slovak Academy of Sciences Award for Excellent Master Thesis*:
  Michal Kompan, Ján Turoň

- *Tatra banka Award for Excellent Master Thesis*:
  Michal Holub

- *Dean's Commendatory Letter for Master Thesis*: Pavol Bača, Ján Balažia,
  Michal Holub, Marin Hrubý, Peter Koine, Michal Kompan, Tomáš Kramár,
  Peter Marko, Ladislav Martinský, Vladimír Michalec, Pavel Michlík,
  Ladislav Nagy, Michal Olšovský, Marek Polák, Tomáš Rada, Dušan Rodina,
  Ivan Ruttkay-Nedecký, Gabriel Szabó, Roman Šelmeci, Ondrej Ševce,
  Jakub Šimko, Filip Štiglic, Ján Turoň, Ľuboš Ukrop, Adam Valent,
  Dušan Zahoranský, Dušan Zeleník, Andrej Zelman

226 applicants took part in an entrance examination on July 2010 as a prerequisite to the master programmes. 205 students were offered admission (77 Software Engineering, 66 Computer and Communication Systems and Networks, 62 Information Systems), 189 out of whom were enrolled.

3.3 Doctoral Study (PhD)

Quality and number of doctoral students significantly influence the results obtained in research. We still observe an insufficient number of motivated doctoral students in the fields of informatics and information technologies. The graduates have excellent opportunities in finding positions in the labour market, therefore, even if they are interested in further studies they often prefer to be admitted as part–time students.

This trend has been slightly reversed in recent years. In 2010 the number of applicants and accepted full-time doctoral students first time increased significantly. Number of applicants increased 1.5 times compared to last year and 5 times compared to the previous year. This is reflected also by the number of accepted doctoral students. We believe that in next year this trend will manifest by increased number of defended dissertation theses.

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[3] Several awards are conferred once per academic year – the selection is made according to proposals from graduates after each semester.

Evolution of number of doctoral full-time students (year-end figures)

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of students	11	16	22	22	24	25	30	34	43

In 2010 following dissertations were defended:

- *Juraj Ďuďák*: Contribution to Industrial Communication Standards (Computer devices and systems, supervisor: Pavel Čičák, Associate Professor)
- *Miroslav Líška*: Extending and Utilizing the Software and Systems Process Engineering Metamodel with Ontology (Program and Information Systems, supervisor: Pavol Návrat, Professor)
- *Peter Vojtek*: Contribution to Relational Classification with Homophily Assumption (Software Engineering, supervisor: Mária Bieliková, Professor)

2010 was already the sixth year that the Faculty admitted students for study in newly accredited study programmes in doctoral study. Two accredited study programmes were offered:

- *Applied Informatics*,
- *Software Systems* (as an orientation in Software Engineering).

Regular length of all doctoral study programmes is 3 years for full-time study and 5 years for part-time study.

3.4 Student Conferences and Competitions

The Faculty organised and supported in 2010 several student competitions and conferences. The importance of involvement of the students in such events is very high. Students took active participation in various technical and research activities (co)organised by the Faculty. We are proud to list also successes of our students in national and international competitions organized outside our university.

International ACM SRC Grand Finals 2010
- Michal Tvarožek: 2nd place with project: Personalized Semantic Web Exploration Based on Adaptive Faceted Browsing, supervisor: M. Bieliková

IIT.SRC 2010 – Informatics and Information Technologies Student Research Conference (to be mentioned in the following section in more detail)

ACM International Collegiate Programming Contest
- Winners of the Slovak University of Technology ACM Programming Contest, participation in Central European Regional Contest 2010, Wrocław, Poland: Michal Lohnický, Márius Šajgalík, Daniel Švoňava

Imagine Cup
- 1st place, Slovak finals of the Imagine Cup 2010 competition, advanced to the Imagine Cup 2010 Worldwide Finals: Anton Benčič, Roman Mészároš, Roman Panenka, Márius Šajgalík: Present, supervisor: M. Barla

iCompetition 2010

– Vladimír Michalec placed on the 4th place at international competition instructors global education Cisco Networking Academy Program

Best Paper Award – RecSysTel 2010

– Pavel Michlík: Exercises Recommending for Limited Time Learning, supervisor: M. Bieliková

Outstanding Paper Award – WWW/Internet 2010

– Michal Barla: Ordinary Web Pages as a Source for Metadata Acquisition for Open Corpus User Modeling, supervisor: M. Bieliková

Conference Participants Paper Award – Datakon 2010

– Jakub Šimko: Little Google Game: Relationships Term Extraction by means of Search Game, supervisor: M. Bieliková, M. Tvarožek

E-learning Competition Winner – ICETA 2010

– Marián Šimko won the 1st place in the category Supporting learning materials and landed a special prize of the Minister of education for the project with remarkable contribution to education with the project *ALEF – Adaptive Learning Framework* (student authors Marián Šimko, Michal Barla, Pavel Michlík, Martin Labaj, Vladimír Mihál, Maroš Unčík, Jakub Ševcech supervised by M. Bieliková)

ACM SPY – Student Project of the Year Czech and Slovak Competition

– Maroš Unčík (supervised by M. Bieliková), Michal Holub (supervised by M. Bieliková), Jakub Šimko (supervised by M. Tvarožek) were among the winners of the winners of the ACM SPY 2010 and presented their project in the ACM SPY 2010 Finals:
    • Maroš Unčík – 2nd place in bachelor category
    • Jakub Šimko – 3rd place in maater category
    • Michal Holub – 5th place in master category

IT Diploma Thesis of the year – Czech and Slovak Competition

– participation in the finals: Michal Kompan (supervised by M. Bieliková), Tomáš Kramár (supervised by M. Barla), Dušan Zeleník (supervised by M.Bieliková), Dušan Rodina (supervised by Ľ. Majtás), Adam Valent (supervised by J. Štefanovič):
    • Michal Kompan – 1st place (CRM Systems category)
    • Tomáš Kramár – 2nd place (CRM Systems category)
    • Dušan Zeleník – 2nd place (Computing category)

RoboCup, Soccer Simulation League

– Winners of the Slovak University of Technology RoboCup 2010, 3D: Team RoboKIT: Marcel Kanta, Michal Ilko, Ondrej Topľský

– Winners of the Slovak University of Technology RoboCup 2010, 2D: Team Polená: Michal Hlaváč

TP Cup

– Best Team of the year 2010 winners: Vladimír Mihál, Eduard Kuric, Karol Rástočný, Róbert Sopko: Imagine Cup 2010: Game Design, supervisor M. Tvarožek

3.5 Awarded Theses

Excellent Bachelor Theses

Student name:	Timotej Betina
Degree program:	Informatics
Thesis title:	*Multimedia Learning System*
Supervisor:	Viera Rozinajová, PhD.
Defended on:	May 2010
Annotation:	The main goal of this thesis was to design and develop a multimedia learning system, because there is a significant growth of using information technologies in education. Learning systems bring many benefits for universities and students. We introduced and evaluated three existing systems of various types and common technologies, which are used for developing such systems. The result of this analysis was the categorization, type, anticipated features and used technologies of our system. We specified and designed the features of our system with respect for the analysis. We used UML diagrams, which later helped us with system implementation, where our main focus was interactivity and illustrations of teaching materials. We also focused on clear orientation within the system and ease of the course and test management for teacher. The implemented system had been tested during the development phase and it had to pass some acceptance tests at the end.

Student name:	Maroš Ďuríček
Degree program:	Computer systems and networks
Thesis title:	*Monitoring system of environment based on ARM9*
Supervisor:	Mária Pohronská
Defended on:	May 2010
Annotation:	This thesis analyzes processor from family ARM9, specifically the processor STR912FW44 in terms of performance, power and provided peripherals. It deals with the analysis of sensors designed to sense the environment and their suitability to the monitoring system. We also deal with design and implementation of the module with sensors, which is connected to the development board with the processor. Subsequently we deal with the design and implementation of the embedded application which uses the LCD display to view the measured parameters of the environment. The result of this thesis is a system using analog sensors of temperature, pressure and humidity and it is similar to systems such as meteorological stations. The system displays actual parameters of the environment and also graphically shows the saved values using the internal memory of the processor.

Student name:	Lukáš Kavický
Degree program:	Informatics
Thesis title:	*Use of the Particle Swarm Optimization to Minimize Logic Circuits*
Supervisor:	Jiří Pospíchal, Professor
Defended on:	May 2010
Annotation:	Building on the recent works dealing with the problem of combinational logic circuits minimization in this thesis we present an algorithm based on the particle swarm optimization method combined with the Roulette selection mechanism, well-known from evolutionary algorithms. Given the input in the form of a truth table, the algorithm tries to design the logic circuit fulfilling truth table conditions while minimizing the logic gates count. We also implemented several variations of the algorithm containing selected recent improvements of the PSO algorithm and compared their impact on the performance of the algorithm. According to the results, this hybrid form of algorithm is competitive with the currently published approaches to the solving of the given problem.

Student name:	Tomáš Vlček
Degree program:	Computer systems and networks
Thesis title:	*Linux Security*
Supervisor:	Ladislav Hudec, Assoc. Professor
Defended on:	May 2010
Annotation:	The goal of this thesis is to analyze chosen security mechanism of Linux kernel and to create a learning material, which will help students became familiar with this mechanism. This learning material should consist of theoretical part, where the mechanism is described and examples that should help student to examine behavior of this mechanism. We concern on Linux kernel packet filter (iptables). We analyze different types of firewall in order to compare and contrast them, study packet filter, circuit and application proxy. We pay attention to various forms of network attacks as well. Next, we provide short review on history and current state of Linux kernel packet filter. Main part of the project was dedicated to iptables. We use an example to explain the basic concept of iptables (table, chain, rule, target). Consequently, we provide an overview of their functionality. The last part of project contains lessons that should help student to practice theoretical knowledge.

Excellent Master Theses

Student name:	Pavol Bača
Degree program:	Software Engineering
Thesis title:	*Replacing Object-Oriented Patterns with Intrinsic Aspect-Oriented Patterns*
Supervisor:	Valentino Vranić, PhD.
Defended on:	May 2010
Annotation:	In aspect-oriented programming it is possible to replace object-oriented design patterns by advantageous aspect-oriented reimplementations. Design patterns exist for aspect-oriented programming as well

as for object-oriented programming. Intrinsic aspect-oriented design patterns take the advantages of aspect-oriented programming to get the potential to become more modular then associated object-oriented design patterns. This thesis analyses possibilities of replacing object-oriented patterns by advantageous aspect-oriented patterns instead of reimplementations. Aspect-oriented design patterns are also compared with patterns in Christopher Alexander's understanding. The pattern groups have some similar attributes but they are mostly different despite of the aspect-oriented patterns fall within the Alexander's pattern definition. This thesis also contains the way of replacement of four object-oriented patterns by Cuckoo's Egg and Worker Object Creation patterns. The term 'replacement' is discussed here in relation to Director pattern. By using these four replacements a few of pattern composition examples have been made. The examples also partially confirm these replacements. Quantitative assessments of the examples have been made. In the results, the replacements seem to be better from the perspective of separation concerns and coupling. On the other hand, some restrictions have shown which make the replacements not be better in all cases.

Student name:	Michal Holub
Degree program:	Software Engineering
Thesis title:	*Adaptation of Website´s Navigation Based on Behavior of Users*
Supervisor:	Mária Bieliková, Professor
Defended on:	May 2010
Annotation:	The constant growth of the amount of information available on the Web represents a big challenge. We need means to effectively browse the websites without being overwhelmed by the irrelevant data. Answer to this challenge lies in personalization of the content of websites. This thesis deals with finding of a suitable method for personalization of website's navigation. With navigation personalized the user should get the right information without the need for explicitly asking for it. We analyze existing methods for modifying the content of websites by adaptive web-based systems. We propose novel method for adaptive navigation support. The main contribution of this method is automatic adaptation of showed links based on the monitoring of user's behavior during his visit of the website. Another feature of this method is automatic estimation of user's interest in visited web page. We use proposed approach to recommend interesting links among similarly behaving users. The recommended links are presented in a form of personalized calendar and personalized news sections. We evaluate the proposed method in experiments with adaptation of the structure of our faculty's website.

Student name:	Michal Kompan
Degree program:	Software Engineering
Thesis title:	*Personalized Recommendation of Interesting Texts*
Supervisor:	Mária Bieliková, Professor
Defended on:	May 2010

Annotation: The main topic of this document is personalized recommendation of news articles. The domain of newscast is typical example of dynamic highly changing domain with enormous information value decreasing. Second aspect of this domain is the amount of information included in average news portal. One of the possible solutions of this problem is personalized recommendation. We present an analysis of existing solutions and systems, which cover this topic. The result of our work is proposal of the novel method for personalized recommendation based on the article content. We focused on fast content similarity search, and on short and fast article representation, which can be used for real-time recommendation. The article representation is based on multicompound article vector, which represents the article based on article title, correlation between article title and content, article category, several keywords or readability index. This kind of representation allows us to represent non text articles too (e.g. video or photo content). Proposed methods were verified in the domain of news portal SME.SK.

Student name: Tomáš Kramár
Degree program: Software Engineering
Thesis title: *Supporting User Navigation Using Social Network Context*
Supervisor: Michal Barla
Defended on: May 2010
Annotation: Modern search engines treat user queries in isolation. User's goals, interests and needs – his context – are completely ignored. To solve this problem, we employ a simple fact that similar users tend to have similar needs and browse similar Web pages. In this work we present a method to add search to context by leveraging the structure of the underlying social network. The proposed method was experimentally evaluated on the adaptive proxy server platform, where we modified the search results to include the recommended results. These recommendation were successful in 22% of all cases (user clicked some of the recommended links). Moreover, the users were more interested in the recommended results than in the regular results; users spent more than 4 seconds on the recommended page in 54,7% of all cases, compared to 27,4% for regular search results.

Student name: Stanislav Ochotnický
Degree program: Software Engineering
Thesis title: *Synthesis of VHDL from SIMULINK Model*
Supervisor: Juraj Štefanovič
Defended on: January 2010
Annotation: The aim of this thesis is to introduce a new tool for speeding up development of specialized embedded systems with high performance and reliability based on the FPGA technology. The Tool developed by us enables synthesis of the VHDL from a model created in the Mathworks Simulink. The theoretical introduction contains information about embedded systems, the FPGA technology and the Simulink environment. We also contemplate different tools for the FPGA synthe-

sis from high-level languages. The implemented tool was tested and regarded as functional and fulfilling requirements. In the end we propose possible further improvements and extensions of this tool.

Student name:	Michal Olšovský
Degree program:	Computer Systems and Networks
Thesis title:	*TCP Protocol Performance*
Supervisor:	Margaréta Kotočová, Assoc. Professor
Defended on:	May 2010
Annotation:	This paper provides an overview of the current performance of the TCP protocol in various network environments from the point of the delay and bandwidth. The work includes an analysis with the presentation of the TCP protocol from the OSI model to its high speed variants with an emphasis on the elements affecting the protocol's performance. An example is TCP header with added extensions, congestion management, window's management, or different variants of the TCP protocol. The analytical part does not miss an overview of the most commonly used network simulators used to simulate the performance of each TCP option. The practical part of the work is dedicated to the specification, design, implementation and testing of following extensions – window scaling, window scaling with the cancel option, window scaling with the resume option and extended window scaling. Conclusion of the work includes a summary of the achieved results which is followed by some instructions relating to the practical part.

Student name:	Jakub Šimko
Degree program:	Software Engineering
Thesis title:	*Enhancing Search Using Graphs and User Model*
Supervisor:	Michal Tvarožek
Defended on:	May 2010
Annotation:	The aim of this project is to enrich the exploratory search domain by designing, implementing and validating new methods, that use graph and graphic visual structures and deducting knowledge about users. This document introduces to the realm of web search and exploratory search, its problematic aspects and analyzes several solutions in this field. Exploratory search includes support of open-ended search tasks and relies on visualization of information space. Afterwards, design, implementation and validation description of our new methods follows. Within the scope of exploratory search, we employ ourselves by clarifying the process of search by visualization of its history and conceptualizing and sorting of user's results. We also design a support method for creating term networks by analyzing the logs of simple game with web search engine that employs negative search.

Student name:	Ján Turoň
Degree program:	Computer Systems and Networks
Thesis title:	*Visualization of SystemC Model Simulation*
Supervisor:	Katarína Jelemenská, PhD.

Defended on: May 2010

Annotation: Topic of the Diploma project is simulation of digital systems described using SystemC library and simulation results presentation. We became aware of SystemC concept and analyze available simulators and tools for schematic representation of SystemC designs. We propose to extend existing tool SystemC+Visualizer by reactivating the built-in but previously not used OSCI simulator. New data structure that records all simulation data and routine for loading and presentation of its contents is proposed and implemented. Our application creates block diagram of digital system and allows its simulation. Ports and wires are colored according to their current logic value, which is also shown as a number. The new product implemented as a static library is suitable for students as educating support tool, as well as for visual debugging of SystemC models in general. Clear, easy to understand and innovative representation of model and simulation is offered.

Assoc. Prof. Margaréta Kotočová
Vice-Dean for Education (first and second levels)

Prof. Mária Bieliková
Vice-Dean for Research (including the third level education)

4   Research

4.1 Research Areas

The economic and social development is featured by an exponential growth of new scientific knowledge today. Informatics and information technologies are playing the key role. They boost the development of all scientific branches with the creation of new methodological base to do research and development. The development time decreases and the traditional theoretical and experimental abilities are extended broadly.

Informatics has developed to be an autonomous scientific area, which supports success not only in the branch of information technologies, but it also has wide consequences as for the lives of individuals and society. It is not a mere coincidence that research in the IIT area has become the priority among the research topics in the European Union.

Research at FIIT STU is oriented on these main research areas that respect the organisation, existing technical and laboratory equipment and professional skills:

- collaborative access, analysis and presentation of documents in the world-wide-web by the use of modern software tools,

- information development in distributed environment of intelligent agents,

- methods and tools for software systems development,

- the use of computer graphics in virtual and augmented reality systems,

- "echo state" neural networks and recurrent neural networks,

- application of evolutionary algorithms in theory of multi-agent systems,

- methods and tools for security and administration of network and mobile computer systems,

- parallel systems for real-time computing,

- the design methods and tools for application-specific digital systems,

- formal methods and tools for design and description of digital systems,

- embedded computer systems,

- fault-tolerant high-speed parallel and distributed computer structures.

FIIT STU recognizes as part of its mission to serve the broader academic community in Slovakia and also internationally in promoting cooperation in relevant fields. In 2010 FIIT STU supported the Slovak ACM Chapter activities. FIIT STU supported also the publishing Bulletin "Information Sciences and Technologies" – a web based scientific journal, activity initiated and executed by the ACM Slovakia Chapter.

4.2 Scientific Activities

In the year 2010, FIIT STU has organised or co-organised several scientific events:

– scientific conference *Cognition and Artificial Life X*,

– international conference *Cybernetics and Informatics 2010*,

– international scientific conference *SCCG 2010 – Spring Conference on Computer Graphics*,

– scientific conference *Znalosti 2010*,

– international scientific conference *SOFSEM 2010 – Annual Conference on Current Trends in Theory and Practice of Informatics*,

– scientific workshop *WIKT 2010 – Workshop on Intelligent and Knowledge Oriented Technologies*,

– international conference *ICETA 2010 – International Conference on Emerging E-Learning Technologies and Applications,*

– international workshop *GCCP 2010 – International Workshop on Grid Computing for Complex Problems,*

– regular seminar on *Artificial Intelligence* (organized at FIIT STU),

– regular seminar on *Personalized Web* (organized at FIIT STU).

The Faculty took part in providing technical and scientific programmes, especially through the work in programme committees of more than 40 conferences, mostly international:

– ABIS, International Workshop on Personalization and Recommendation on the Web and Beyond,

– ACIIDS, Asian Conference on Intelligent Information and Database Systems,

– ADBIS, East-European Conference on Advances in Databases and Information Systems,

– ASEA, International Conference on Advanced Software Engineering & Its Applications,

– BEC, Biennial Baltic Electronic Conference,

– CESCG, Central European Seminar on Computer Graphics,

– CEE SECR, Central and Eastern European Software Engineering Conference in Russia,

– CI, IASTED International Conference on Computational Intelligence,

– CompSysTech, International Conference on Computer Systems and Technologies,

– Cognition and Artificial Life, Annual Conference on Cognition and Artificial Life,

– CSE, International Scientific Conference on Computer Science and Engineering,

– Cybernetics and Informatics, International Conference on Cybernetics and Informatics,

– Datakon, Annual Conference on the Current Trends in Databases and Information Systems,

- DDECS, IEEE Symposium on Design and Diagnostics of Electronic Circuits and Systems,

- EJC, European Japanese Conference on Information Modelling and Knowledge Bases,

- ENASE, International Working Conference of Evaluation of Novel Approaches to Software Engineering,

- ETS, IEEE European Test Symposium,

- EWDTS, East-West Design &Test Symposium,

- FPL, International Conference on Field Programmable Logic and Applications,

- GCCP, International Workshop on Grid Computing for Complex Problem,

- HT, ACM Conference on Hypertext and Hypermedia,

- IADIS, Virtual Multi Conference on Computer Science and Information Systems – Intelligent Systems and Agents,

- ICCC, International Carpathian Control Conference,

- ICCIT, International Conference on Convergence and Hybrid Information Technology,

- ICDEM, International Conference on Data Engineering and Management,

- ICETA, International Conference on Emerging E-Learning Technologies and Applications,

- ICWE, International Conference on Web Engineering,

- ITAT, Workshop on Information Technologies – Applications and Theory,

- ITS, International Conference on Intelligent Tutoring Systems,

- KES-AMSTA, KES International Symposium on Agent and Multi-Agent Systems – Technologies and Applications,

- MCCIS-ISA, IADIS International Conference, Intelligent Systems and Agents Conference,

- MEMICS, Annual Doctoral Workshop on Mathematical and Engineering Methods in Computer Science,

- MENDEL, International Conference on Soft Computing,

- NWESP, International Conference on Next Generation Web Services Practices,

- PAD, Czech and Slovak Seminar on Computer Architectures and Diagnostics,

- S3T, International Conference on Software Service Semantic Technologies,

- SAMI, International Symposium on Applied Machine Intelligence and Informatics,

- SCCG, Spring Conference on Computer Graphics,

- SERA, International Conference on Software Engineering Research, Management and Applications,

- SMAP, International Workshop on Semantic Media Adaptation and Personalization,

- SOFSEM, Annual Conference on Current Trends in Theory and Practice of Informatics,
- UMAP, International Conference on User Modelling, Adaptation and Personalization,
- WIKT, Workshop on Intelligent and Knowledge oriented Technologies,
- WIRSS, International Workshop on Web Information Retrieval Support Systems, IEEE/WIC/ACM International Conference on Web Intelligence,
- Znalosti, Annual Conference on Knowledge Acquisition, Representation and Exploitation.

In 2010, FIIT STU organised or co-organised several events aimed at exhibition of students' research work. Above all, the most important event was the *6th Informatics and Information Technologies Students Research Conference – IIT.SRC 2010*, which was held on April 21, 2010.

IIT.SRC 2010 attracted 81 student papers from which 72 were accepted (12 bachelor, 44 master, 16 doctoral, one paper authored by master students together with a doctoral student). It is an increase comparing to 2009 by 9% mostly in master and doctoral student categories. Papers were in two categories: full papers (further organized as researching solutions and developing innovative solutions) and extended abstracts.

IIT.SRC 2010 was organized in five sections:

- Information Analysis and Processing,
- Information Search, Retrieval and Navigation,
- Software Engineering,
- Computer Systems, Networks and Security,
- Artificial Intelligence, Computer Graphics and Multimedia.

The Conference was opened by a keynote of Bebo White (SLAC, Scientific Computing and Computing Services, Stanford, California, USA) on topic of emergence of the Web Science.

The excellent student papers were awarded. The best paper award was conferred to:

- *category of doctoral students – Jozef Tvarožek* (Socially Intelligent Approach to E-Learning, supervisor M. Bieliková)
- *category of master students – Igor Andruška* (Discovering Topics in Short Texts Based on Domain Ontology, supervisor I. Kapustík)
- *category of bachelor students – Ivan Srba* (Tracing Strength of Relationships in Social Networks, supervisor M. Bieliková)

Dean's award was the highest appreciation. It was conferred to:

- *Marián Šimko, Michal Barla, Pavel Michlík, Martin Labaj, Vladimír Mihál, Maroš Unčík* (ALEF: Learning and Collaboration in Web 2.0, supervisor M. Bieliková)
- *Igor Andruška* (Discovering Topics in Short Texts Based on Domain Ontology, supervisor I. Kapustík)
- *Peter Bartalos* (Scaling QoS Aware Semantic Web Service Composition, supervisor M. Bieliková)

- *Valéria Harvanová* (Home Monitoring System as a Tool for User Comfort and Security, supervisor T. Krajčovič)
- *Ľuboš Ukrop* (Visualizing Graphs Using Soap Bubbles, supervisor P. Kapec)

Besides the 72 papers presented at the conference in two poster sessions several accompanied events were organized

- *RoboCup* Exhibition, where students presented interesting results in simulated league both 2D and 3D; RoboCup is an attractive project with free participation, designed to support education and research in artificial intelligence, robotics and information technologies
- *TP-Cup* Showcase, where 10 teams presented their projects; TP-Cup is a competition of master students' teams aimed at excellence in development information technologies solutions within two semester long team project module in master study programs.

IIT.SRC 2010 accompanying events included also programming competition and technical presentations related to modern information technologies given by the IIT.SRC 2010 conference sponsors.

FIIT STU initiated a join of two Czech and Slovak student competitions

- ACM CZ Student Research Competition organized by Czech ACM Chapter and Czech and Slovak Universities and
- Diploma Thesis Competition organized by IT company Profinit.

ACM SPY – Czech ACM Chapter & Slovakia ACM Chapter Student Project of the Year Competition was established in beginning of 2010. The ACM SPY 2010 Finals were organized in November 2010 in Prague, where 5 best bachelor and 5 best master student projects from overall 44 project submitted by students from 11 Czech and Slovak universities were presented.

The project

- *Annotating Texts in Educational System* authored by our student Maroš Unčík (supervisor M. Bieliková) won the 2nd place in bachelor category and the project
- *Enhancing Search Using Graphs and User Models* authored by Jakub Šimko (supervisor M. Tvarožek) won the 3rd prize in master category.

In September 2010 we actively participated in "The Night of Researcher", event supported by European Commission. This event was organized in more than 150 European cities. Researchers in many countries prepared presentations from the field of science and research for the laic public.

We are proud of seven FIIT STU student teams who presented their interesting research projects to public:

- *Social Network of the Good* – project, which attended the world final of Imagine Cup 2010 in Warsaw, team: Anton Benčič, Roman Mészáros, Roman Panenka, Márius Šajgalík supervised by M. Barla,
- *Little Google Game* – project of game with a purpose, which was part of the project awarded in ACM SPY 2010 Finals presented by Jakub Šimko,

- *Home Meteorological Station* – project on embedded systems presented by Mária Pohronská,

- *Multimedia Automotive Industry* – project of modern multimedia system for cars presented by Matej Jurikovič and Peter Pištek,

- *How to play football* – project RoboCup, students of bachelor and master study supervised by I. Kapustík,

- *Green Game* – project of computer game aimed at saving the environment presented by Eduard Kuric, Karol Rástočný, Vladimír Mihál, Róbert Sopko supervised by M.Tvarožek,

- *Virtual FIIT* – project of virtual walk through new FIIT building, team: Ľubomír Lackovič, Martin Mihalovič, Pavol Nágl, Marcela Polerecká, Martin Uhlík, Peter Voroňák supervised by A. Kovárová.

4.3 Publications

Results of our research were published in 260 publications, which presents 20% increase in overall, however slight decrease in journal papers and books in comparison with 2009. 222 scientific contributions were published in conference proceedings, 85 out of which were published in reviewed proceedings of international conferences. 18 scientific contributions were published in scientific journals and we have authors (co-authors or editors) of 21 books or book chapters.

FIIT STU is a co-publisher of the international scientific journal "Computing and Informatics" (until 2001 Computers and Artificial Intelligence). Two faculty staff members, P. Návrat and V. Kvasnička were members of its editorial board in 2010. Moreover, the faculty participates in editorial boards of eight other scientific journals.

Number of publications in 2010	UAPI	UISI	UPSS	FIIT
Books and parts of books published by international/national publisher	1/2	1/3	-/-	2/5
Scientific works published in international/national scientific journals	2/6	7/1	-/2	9/9
Scientific works published in international conference proceedings	16	43	26	85
Scientific works published in national or local conference proceedings	23	93	21	137
Conference proceedings editors	0	5	1	6
Books editors	2[*]	6[*]	-	7
Published reviews	-	6	-	6

[*] 1 common publication

UAPI – Institute of Applied Informatics
UISI – Institute of Informatics and Software Engineering
UPSS – Institute of Computer Systems and Networks

Overview of other most significant activities in 2010	UAPI	UISI	UPSS	FIIT
Membership in editorial boards of scientific journals	5	5	3	13
Membership in programme committees of international scientific conferences	10	32	9	51
Membership in programme committees of national or local scientific conferences	3	11	4	18
Membership in steering committees of scientific conferences	1	6	2	9

4.4 Research Projects

Research projects constitute an important basis for research realization and research funding. Life cycle of a research project includes its preparation, submission, acceptance of the project followed by the project realization. Because these periods take often several years, activities in certain period influence significantly results in the following period.

Projects of the Scientific Grant Agency of the Ministry of Education and the Slovak Academy of Sciences (VEGA) and of the Slovak Research and Development Agency (APVV) formed an essential form of research organisation and scientific projects funding at the FIIT STU. In 2010

- − two VEGA projects were completed, five were progressed and five new projects were prepared for funding in 2011-2014
- − one APVV project was completed in 2010, 5 new projects were prepared for funding in 2011-2014, and 2 new projects were prepared in cooperation with FEI STU and Slovak Academy of Sciences
- − three projects of the Cultural and Educational Grant Agency of the Ministry of Education of Slovak Republic (KEGA) were progressed and 2 projects in cooperation with FA STU and Comenius University were prepared for funding in 2011-2013.

Mentioned projects are described in reports of institutes presented in the following parts.

The Faculty under the leadership of P. Návrat and I. Kotuliak participated in 2 international projects.

Number of projects funded in 2010	UAPI	UISI	UPSS
VEGA	5[*]	1	3[*]
KEGA	1	2	-
APVV	1[*]	-	1[*]
Other national projects	1	1	2
European Structural Funds	-	2	2
International projects	-	1	1
FIIT STU	**8**	**7**	**11**

[*] common projects

Overview of funds (in Eur)	UAPI	UISI	UPSS	SUM
VEGA[4]	27 705	32 057	23 919	83 681
KEGA	14 554	25 937	-	40 491
APVV	-	-	14 533	14 533
Other national projects	3 900	6 709	6 953	17 562
International projects	-	2 600	-	2 600
FIIT STU	**46 159**	**67 303**	**45 405**	**158 867**

In 2010 two institutes of the Faculty (UPSS, UISI) together with six other institutes of the University, the Institute of Informatics Slovak Academy of Sciences and International Laser Centre progressed project

– SMART – Centre of Excellence for Smart Technologies, Systems and Services

approved within the call of the Agency of the Ministry of Education for the Structural funds of the European Union (ERDF) under the Operational Programme Research and Development with overall budget approx. 1 395 thousands Eur. The same team participated in continuing project SMART II with overall budget approx. 2 214 thousands Eur.

Institute of Informatics and Software Engineering participated in 2009 in preparation of research project for Call of the ERDF Agency directed towards applied research in collaboration with industry. This project led by Gratex Ltd. was approved in 2010 for financing for period of 2011-2014.

The projects are realized in our research laboratories (description can be found in the parts devoted to individual institutes). In 2010 the following laboratories were operated:

– Laboratory of Database Technologies, manager: M. Galbavý,

– Intelligent Systems Laboratory, manager: P. Návrat,

– Advanced Software and Web Technologies Laboratory, manager: M. Bieliková,

– Computer Networks Laboratory I, II, manager: P. Čičák,

– Embedded Systems Laboratory, manager: T. Krajčovič,

– Mobile Computing Laboratory, managers: M. Čerňanský, V. Vranić, I. Kotuliak,

– VLSI Design Laboratory, manager: J. Hudec,

– Digital Systems Description and Design Laboratory, manager: K. Jelemenská,

– Grid Computing Laboratory, manager: L. Hudec.

<div style="text-align:right">

Prof. Mária Bieliková
Vice-Dean for Research
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[4] VEGA – Scientific Grant Agency of the Ministry of Education of Slovak Re-public and the Slovak Academy of Sciences,
KEGA – Cultural and Educational Grand Agency of the Ministry of Education of Slovak Republic,
APVV – Slovak Research and Development Agency

5   National and International Relations

Cooperation of FIIT STU can be characterised from several viewpoints as cooperation with secondary schools, other higher education institutions, research institutes and cooperation with industry (a list of cooperating institutions can be found in the parts devoted to individual institutes).

5.1 Cooperation with Secondary Schools

Cooperation with secondary schools lies in preparation for study at the university especially at the FIIT STU, organising a programming contest ProFIIT, and in technical cooperation. Technical cooperation with secondary schools is achieved especially through the Networking Academy Programme. FIIT STU, as the Regional Networking Academy, guaranties publicity, programme quality, guidance of Local Academies, and regular technical training and consultations for teachers/instructors of secondary schools. In this way the Faculty leads, methodologically supervises and technically trains 24 secondary schools. In 2010 our faculty organized Cisco NAG 2010 contest. One of the very successful activities is yearly organised Open Day of the Faculty.

5.2 Cooperation with Industry

Cooperation with industry is oriented towards training and consultation activities and educational cooperation. One of the new activities of the year was establishing "The Week of the Faculty and Partner Companies Cooperation".

Training and Consultation Activities

FIIT STU has been very successful in training and consultations in cooperation with the companies Cisco System Slovakia, GTEC and Microsoft Slovakia. In cooperation with Cisco the Faculty has been integrated into the world-wide academy programme oriented to training in network technologies. Nowadays FIIT STU Regional Networking Academy offers a full 4-semester programmes CCNA (Cisco Certified Networking Associate) and CCNP (Cisco Certified Networking Professional).

Except above mentioned programmes FIIT STU offers programmes for IP Telephony, WiFi Communication, Network Security and other special courses.

In co-operation with GTEC Common Training and Consultation Centre (CTCC) offers various programmes. The main purpose of this centre is to offer technical training for the non-academy sphere.

The Week of the Faculty and Partner Companies Cooperation

With the aim of improving cooperation with praxis the Faculty continued in a new form of cooperation with partner companies established in 2009. We organized one week serial of special lessons provided by our industry partners for our students. The second annual set of this activity was successful especially thanks to the following companies and lessons themes:

–   HP Slovakia: IT management and administration

–   IBM: Education with IBM

–   Profinit: Modern IT technologies

–   PosAm, Ltd.: Open Day

–   Cisco, Ltd., GTEC, Ltd., ELFA, Ltd.: Modern Network Technologies and Technology Platforms, Network Academy Games

Educational Cooperation

In the field of education and other activities the Faculty has been cooperating with important Slovak companies for many years. Academy training programmes were developed thanks to the support of cooperation with Cisco Systems Slovakia, Soitron, Siemens Enterprise Communications, DITEC, DATALAN, ASSECO Slovakia, HP Slovakia, Goldstein Fuchs, Tempest.

Some of above mentioned companies have directly co-operated in Faculty education.

Other remarkable support the Faculty has obtained in cooperation with IBM Slovakia, Microsoft Slovakia, SIEMENS, GRATEX, ACCENTURE, Q-Products. Cooperation with the above mentioned companies is based on special agreements.

5.3 Mobility programmes

FIIT STU is using the cooperation within the mobility programme LLP/Erasmus. In year 2010, this programme was contracted with these European universities:

–   KaHo Sint-Lieven University, Gent, Belgium

–   Angel Kunchev University of Rousse, Bulgaria

–   Faculty of Information Technologies, Technical University in Brno, Czech Republic

–   University of Southern Denmark, Odense, Denmark

–   University of Aarhus, Denmark

–   Tallinn University of Technology, Estonia

–   Lahti University of Applied Sciences, Finland

–   EPITA, Graduate School of Computer Science and Advanced Technologies, Paris, France

–   ISEP, Graduate school of Engineers in Computer Engineering, Electronics, Telecommunications and Network, Paris, France

–   The Nordakademie, Elmshorn, Germany

- Ruhr-University, Bochum, Germany

- Leipzig University, Germany

- Wienna University of Technology, Austria

- Faculty of Electrical Engineering and Computer Science, University of Maribor, Slovenia

- Faculty of Engineering, Mondragón University, Spain

- Technical university of Madrid, Spain

- Catalunya Technical University, Barcelona, Spain

- University of Alcalá, Spain

- Växjo University, Sweden

- University of Calabria, Italy

In 2010, seven incoming Erasmus students have visited FIIT STU. In 2010, 14 students of our faculty were approved for Erasmus-mobility abroad for various destinations, 6 students were hosted by our faculty and 6 teachers have visited France, Great Britain and Belgium.

Besides the LLP/Erasmus agreements, a special agreement of cooperation is established with the Institut Superieur d'Electronique de Paris (ISEP). Based on this agreement, students from ISEP were visiting FIIT STU for the training period of 1 month (July) to do their mandatory students' internship. In summer 2010, we hosted 15 students from ISEP.

<div align="right">

Assoc. Prof. Pavel Čičák
Vice-Dean for Public Relations

Juraj Štefanovič, PhD.
Socrates Erasmus Coordinator

</div>

6 Faculty Services

6.1 Slovak Informatics Library

Academic Senate of the faculty approved on April 9, 2010 the incorporation of the Slovak Informatics Library in the organizational structure of the faculty as a faculty department. Dean subsequently established the Slovak Informatics Library using the certificate of incorporation with effect from May 1, 2010.

Slovak Informatics Library was established at the Faculty of Informatics and Information Technologies, Slovak Technical University in Bratislava in response to the faculty needs for research and training of experts in the field of informatics and information technologies for knowledge-based economy and for building an inclusive information society in Slovak Republic. The library is the central library to work with the scientific literature in computer science and information technologies in the Slovak Republic. This library extends the scope of previous library at FIIT STU from faculty level to nationwide level.

The book catalogue contains more than 6 600 items, which are freely available in the Library. The catalogue can be found on `http://olib.cvt.stuba.sk`. The Library purchased and acquired thanks to donation 40 titles of professional journals (mainly ACM, IEEE membership) in various languages (5 out of them are in Slovak). Journals and selected books are located in the Study Room.

The information services make available, within the FIIT STU environment, 12 external electronic databases (Science Direct, ACM Digital Library, IEEE Computer Society Digital Library, EI Engineering Village 2, EIFL Direct – EBSCO host, IoP Electronic Journals, Oxford Reference Online, The Scientific World, Web of Science, SCOPUS, Web of Knowledge, Willey Encyclopaedia of Electrical and Electronics Engineering), include several fulltext accesses.

The Library also covers loan of the books and magazines and lending basic assistance besides information search.

6.2 Computing and Communication Services

The Centre for Computing and Communication Services at the Faculty of Informatics and Information Technologies provides the following services for educational and research purposes at FIIT STU:

- functioning of the faculty central servers and services,
- functioning of the faculty system and network infrastructure,
- functioning of the faculty information systems,

- new servers, computers, printers, scanners etc. installation,

- operation systems and specialized software installation,

- upgrading and maintenance of computers,

- services for faculty wire and wireless access points to the Internet,

- functioning of the camera security system,

- functioning of the IP telephony system,

- data-projectors installation.

The faculty computer network is based on a structured cable system and it is using 100 Mbps transfer speed. It consists of approximately 200 personal computers and notebooks of the faculty staff and PhD. students, 220 personal computers and workstations in the education and research laboratories and 30 specialized servers.

The Centre for Computing and Communication Services also provides full service for educational computer laboratories and full or partial service for research laboratories of the institutes.

Assoc. Prof. Tibor Krajčovič
Head of Centre for Computing and Communication Services

Ľubica Palatinusová
Faculty Secretary

7   Institute of Applied Informatics

E-mail:	`uapi@fiit.stuba.sk`
Web:	`uapi.fiit.stuba.sk`
Tel:	+421 2 654 22 707
Fax:	+421 2 654 20 587

The institute specializes in the area of applied informatics. The scientific and professional activities of the institute concentrate mainly on the area of computational intelligence (neural networks, evolutionary algorithms, artificial life, simulation of social systems), in application of computer graphics in virtual reality systems and in systems of enhanced reality, in visualization and human – computer interaction, in grid and parallel computing, in mobile computing (development of applications for mobile computing), and in computer and information security.

The institute is responsible for the following degree programme:

–   Applied informatics (doctoral degree).

7.1 Staff

Director
Ladislav Hudec, Assoc. Professor

Deputy Director
Vladimír Kvasnička, Professor

Administrative Department
Katarína Pribišová

Teaching Staff
Michal Čerňanský, PhD.
Miroslav Galbavý
Vladimír Kvasnička, Professor
Peter Lacko, PhD., till June 2010
Matej Makula, PhD. (part time)
Jana Parízková
Jiří Pospíchal, Professor
Viliam Solčány, PhD. (part time)

Branislav Steinmüller (part time)
Ondrej Strnád, PhD. (part time)
Martin Šperka, Assoc. Professor (part time)
Juraj Štefanovič, PhD.
Peter Trebatický, PhD.

External lecturers
Vanda Benešová, PhD.

Full time PhD Students
Jakub Breier
Peter Drahoš
Ondrej Hirjak
Peter Kapec
Michal Kobza
Michal Kottman
Alena Kovárová
Juraj Laca
Miroslav Makýš
Peter Marko
Juraj Michalák
Juraj Pálfy
Juraj Števek
Oľga Trebatická
Matúš Uherčík
Ľubomír Varga
Peter Vilhan

7.2 Teaching

Undergraduate Study (Bc.)

Course	Semester	Credits	Lecturer
Algebra and Discrete Mathematics	Autumn	6	V. Kvasnička, J. Pospíchal
Human-Computer Interaction	Autumn	6	M. Šperka
Database Systems	Spring	6	M. Galbavý
IT Security Management	Spring	5	O. Strnád
Mathematical Logic I	Spring	6	V. Kvasnička
Operating Systems	Autumn	6	V. Solčány
Parallel Programming	Autumn	6	M. Čerňanský
Modelling and Simulation	Autumn	6	J. Štefanovič

Master Study (Ing.)

Course	Semester	Credits	Lecturer
Cognitive Science	Spring	6	V. Kvasnička
Machine Learning	Autumn	6	J. Pospíchal
Multimedia Computer Systems	Spring	6	M. Šperka
Evolutionary Algorithms	Spring	6	J. Pospíchal
Neural Networks	Autumn	6	M. Čerňanský
Operating Systems Design	Spring	6	J. Štefanovič
Architecture of Computer Systems	Autumn	6	L. Hudec
Security of Computer Systems	Autumn	6	L. Hudec
Security in Internet	Spring	6	L. Hudec
Security and Management of Information Systems	Autumn	5	O. Strnád

7.3 Theses

Bachelor (Bc.) Theses – graduates 2010

Study Programme Informatics

– Auder, Miloš: *Optimization of Intelligent Transportation Systems*.
Supervisor: J. Cigánek

– Bahno, Juraj: *Use of Markov Models in Predictive Inserting of Text*.
Supervisor: M. Čerňanský

– Barát, Michal: *Image Processing*. Supervisor: M. Makula

– Belianský, Michal: *Visualisation of SQL Queries*. Supervisor: J. Parízková

– Berith, Robert: *Automatic Synthesis of Control and Decision Making Structures by Genetic Programming*. Supervisor: Š. Kozák

– Borga, Peter: *Automatic Documentation and Metrics Generation from Source Code*.
Supervisor: P. Kapec

– Brček, Adam: *The Construction of Diagnosis of Defective Behavior of Complex Systems*. Supervisor: V. Kvasnička

– Budzel, Matej: *Non-Standard Manual Controlling of Applications*.
Supervisor: J. Štefanovič

– Cséfalvay, Pavel: *Visualization of Machine Oriented Program*.
Supervisor: J. Parízková

– Čerman, Matúš: *Graphic User Interface in a 3D Environment*. Supervisor: P. Kapec

– Drahoň, Daniel: *Speech Recognition*. Supervisor: M. Makula

– Duchoň, Gabriel: *Generating Documentation from Source Code*.
Supervisor: P. Kapec

– Gomola, Alojz: *Methods of Computing Optimal Structure Artificial Neural Network Models*. Supervisor: J. Števek

- Hruška, Miroslav: *Proposal of Methods for Optimizing Artificial Neural Network Structures*. Supervisor: Š. Kozák

- Hudec, Ján: *Interactive Visualization of Complex Graphs via Virtual Reality*. Supervisor: M. Šperka

- Hurban, Tomáš: *Machine Oriented Language in Application Context*. Supervisor: J. Parízková

- Jakabovič, Juraj: *Recognition of Music Score and its Consecutive Translation into MIDI*. Supervisor: A. Kovárová

- Kajan, Peter: *Library for Graph Visualization In 3D Space*. Supervisor: P. Kapec

- Kavický, Lukáš: *Use of the Particle Swarm Optimization to Minimize Logic Circuits*. Supervisor: J. Pospíchal

- Kompánek, Matej: *Visual Interface for Application Control*. Supervisor: J. Štefanovič

- Korch, Jakub: *Algorithms for Creation and Application of Markov Models for Parallel Environment*. Supervisor: M. Čerňanský

- Kundrát, Michal: *Interactive Creation of Animations for Systems of Virtual Reality*. Supervisor: P. Drahoš

- Kvak, Ján: *Cluster Algorithms for Parallel Environment*. Supervisor: M. Čerňanský

- Lang, Jozef: *Automated Platform Independent Management of Software Modules*. Supervisor: P. Drahoš

- Lipták, Matej: *Automated Platform Independent Management of Software Modules*. Supervisor: P. Drahoš

- Lukeš, Andrej: *The Use of Systems Engineering Tools in Creating Timetables*. Supervisor: M. Galbavý

- Macho, Jozef: *Fuzzy-Neural Algorithms for Modelling Nonlinear Processes in Traffic*. Supervisor: J. Cigánek

- Mikuláš, Miroslav: *Graphical User Interfaces in 3D Environment*. Supervisor: P. Kapec

- Móro, Róbert: *Comparison of Heuristics for Learning the Sunburn Strategy*. Supervisor: J. Pospíchal

- Patočka, Peter: *E-Commerce Portal with Modern Web Technology*. Supervisor: P. Trebatický

- Pečík, Rastislav: *Planned Data Replication Between Database Systems*. Supervisor: M. Galbavý

- Podmajerský, Lukáš: *Non-Standard Manual Control of Application*. Supervisor: J. Štefanovič

- Polko, Ivan: *Evolutionary Optimization of Strategy in Sunburn Game*. Supervisor: J. Pospíchal

- Romaňák, Ján: *Game of Life and Randomness*. Supervisor: J. Pospíchal

- Sloboda, Adam: *Computer Equipment Management Support*. Supervisor: B. Steinmüller

- Somorovský, Michal: *Modelling of Hybrid Processes*. Supervisor: M. Makýš

- Susedík, Jakub: *Tool for Updating the Road Network Map*. Supervisor: M. Galbavý

- Svorada, Peter: *Support for computer hardware management*.
  Supervisor: B. Steinmüller

- Takáč, Marek: *Optical Recognition of Music Scores and Following Transfer into Midi File Format.* Supervisor: A. Kovárová

- Tuška, Marek: *System for Supporting Creation and Realization of Term Timetables*.
  Supervisor: M. Galbavý

- Urban, Ondrej: *Usage of Markov Models for Predictive Text Input*.
  Supervisor: M. Čerňanský

- Valachovič, Stanislav: *The System in Support of Creating Schedule and Executing Exams.* Supervisor: M. Galbavý

- Valenčík, Ivan: *Development of an Intelligent Agent by Subsymbolic Approach of Artificial Intelligence*. Supervisor: P. Lacko

- Valluš, Michal: *Cluster Algorithms for Parallel Environment.*
  Supervisor: M. Čerňanský

- Wolfová, Veronika: *Methods of Determining the Optimal Structure of Models with Artificial Neural Networks*. Supervisor: J. Števek

Study Programme Computer Systems and Networks

- Babiš, Miroslav: *Security of Operating System Windows*. Supervisor: L. Hudec

- Mihalech, Matej: *Security of Apache Web Server*. Supervisor: L. Hudec

- Mihálik, Adam: *Creating Intelligent Agent Using Symbolic Approach of Artificial Intelligence*. Supervisor: P. Lacko

- Vlček, Tomáš: *Linux Security*. Supervisor: L. Hudec

Master (Ing.) Theses – graduates 2010

Study programme Information Systems

- Benický, Peter: *Monitoring, Data Collection and Data Processing Characterizing the Behavior of a User in a Web Environment*. Supervisor: L. Hudec

- Blažek, Slavomír: *Evolutionary Algorithms for 3D Binary Tomography*.
  Supervisor: V. Kvasnička

- Cibulka, Miloš: *Regression Trees in the Case of Missing Values*.
  Supervisor: J. Laca

- Dankovčik, Tomáš: *Application of Software Agents for Information System in Healthcare*. Supervisor: J. Cigánek

- Gyurkovics, Norbert: *Evolutionary Solution of Japanese Puzzles*.
  Supervisor: J. Pospíchal

- Halaš, Marián: *Information Retrieval on Basis of Information Networks Topology*.
  Supervisor: J. Štefanovič

- Herbst, Roman*: The Impact of the Crises on Semester Timetable*.
  Supervisor: M. Galbavý

- Holotík, Peter: *Information Retrieval with Usage of Community Servers*.
  Supervisor: J. Štefanovič

- Jakubec, Peter: *Collection and Use of Additional Information in the Development Schedule.* Supervisor: M. Galbavý

- Miloňová, Daniela: *Information Processing in Traffic Information Systems*.
  Supervisor: M. Galbavý

- Masaryk, Rastislav: *Tool for Teaching of Theoretical Computer Science*.
  Supervisor: M. Čerňanský

- Nagy, Ladislav: *Evolutionary Optimization of the Busy Beaver Problem*.
  Supervisor: J. Pospíchal

- Polák, Marek: *Forms of Interaction in Virtual Reality Usable in the Process of Education*. Supervisor: A. Kovárová

- Slamka, Daniel*: Schedule Creation by Using System Engineering Utilities*.
  Supervisor: M. Galbavý

- Štiglic, Filip: *Visual Recognition of Traffic Situation*. Supervisor: J. Štefanovič

- Tkáč, Stanislav: *Telemetrically Monitoring Function of Auditory Nerves Through Electrode Implanted in Middle Ear and Measured Data Processing*.
  Supervisor: Š. Kozák

- Tomaschek, Juraj: *Controlling Robot Using Particle Swarm*.
  Supervisor: J. Pospíchal

- Valent, Adam: *Measurement Car Driver's Reactions*. Supervisor: J. Štefanovič

Study Programme Software Engineering

- Bán, Marián: *The Use of Stochastic Techniques in Optimization of Decision Trees*.
  Supervisor: P. Angelovič

- Drahoš, Michal: *Interaction in Virtual Reality – Handling*. Supervisor: A. Kovárová

- Farkas, Bálint: *Neuro-Fuzzy Modeling for Dynamic System in Power Engineering*.
  Supervisor: J. Cigánek

- Fillo, Peter: *Signal Processing by Echo State Neural Networks*.
  Supervisor: M. Čerňanský

- Halama, Radoslav: *Optimization of Spatial Coordination of Agents by Evolutionary Algorithm*. Supervisor: J. Pospíchal

- Haluška, Michal: *Dynamical Reservoir of Echo State Neural Networks*.
  Supervisor: M. Makula

- Hlatký, Tomáš*: Parallel Game-Tree Search on Multiprocessor Machine with Shared Memory*. Supervisor: P. Lacko

- Chvostaľ, František: *Monitoring, Collecting and Managing of Data Based on User's Behaviour at Work.* Supervisor: L. Hudec

- Jakubéci, Martin: *Data Visualization Using Sky Metaphor*. Supervisor: P. Kapec

- Koperdák, Marek: *Utilization of GIS in Visualization of Hydrologic Data.* Supervisor: M. Galbavý

- Kottman, Michal: *Representation of Programs in Graphs and their Execution.* Supervisor: P. Kapec

- Ľudvík, Martin: *Software Development in 3D Space.* Supervisor: P. Kapec

- Lysina, Anton: *Training of Echo State Neural Networks Using Simulated Annealing Algorithm.* Supervisor: M. Makula

- Ochotnický, Stanislav: *Synthesis of VHDL from SIMULINK Model.* Supervisor: J. Štefanovič

- Pašmík, Martin: *Online Adaptation of Echo State Neural Networks.* Supervisor: M. Makula

- Pifková, Hana: *Evolution of Coordination of Cellular Automata.* Supervisor: J. Pospíchal

- Poláková, Katarína: *The Use of Multimedia Information in Traffic Information Systems.* Supervisor: M. Galbavý

- Repaský, Miroslav: *The Interface Development Based on Embedded System.* Supervisor: J. Štefanovič

- Rončkevič, Martin: *The Computer Controlled by Thought.* Supervisor: M. Šperka

- Ruttkay-Nedecký, Ivan: *Visualization of Program Execution in 3D Environment.* Supervisor: P. Kapec

- Sojka, Marek: *Online Adaptation of Echo State Networks.* Supervisor: M. Makula

- Šurek, Tomáš: *Monitoring and Prediction Traffic.* Supervisor: J. Štefanovič

- Tekeľ, Jakub: *Recurrent Auto-Associative Memory (RAAM).* Supervisor: V. Kvasnička

- Ukrop, Ľuboš: *Visualization of Graph Structures Using Soap Bubbles.* Supervisor: P. Kapec

Study Programme Computer Systems and Networks

- Habaj, Dalibor: *Penetration Testing of Web Servers.* Supervisor: L. Hudec

- Marko, Peter: *Security Analysis of Network Protocols.* Supervisor: L. Hudec

- Szabó, Gabriel: *Implementation of an Interface for Creating Software with Hand Recognition.* Supervisor: J. Štefanovič

- Žáry, Matej: *Security Analysis of Computer Virtualization.* Supervisor: L. Hudec

7.4 Research Laboratories

Laboratory of Database Technologies

Manager: M.Galbavý
Contact: `miroslav.galbavy@stuba.sk`
Description: The laboratory is oriented towards support of research tasks, which use in some stages of solution a database environment, or which deal with security issues of database and information systems. Further application is in database application including multimedia applications,

Global Information Systems, on-line transaction processing, on-line analytical processing, data-mining, data warehouses, internet access to databases, applications of CASE systems. The laboratory is equipped with SUN Enterprise 250 server and tens of SunRay workstations and some PC's. Software equipment includes database environment Oracle 8.1.6, MySQL, PostgreSQL, MS SQL Server, and Progress v8.

Mobile Computing Laboratory

Manager:	M. Čerňanský
Contact:	michal.cernansky@stuba.sk
Description:	The main purpose of the laboratory is to support research and teaching process related to mobile computing. Laboratory supports research and student projects from multiple domains that can greatly benefit from mobile computing technology such as computer vision, computer graphics, machine learning and augmented reality. Currently the laboratory equipment consists of several iOS mobile phone and tablet PC devices (Apple iPhone, Apple iPad) and computers used for development applications for mobile devices. In near future laboratory will be equipped with devices running Android (Google), Symbian OS (Nokia) and eventually other major mobile computing platforms (Windows Phone 7, RIM Blackberry, Samsung Bada).

Grid Computing Laboratory

Manager:	L. Hudec
Contact:	ladislav.hudec@stuba.sk
Description:	The research and teaching laboratory is devoted to teaching distributed processing and parallel programming graduate modules and experimental lab for project on Grid Computing and its components. Grid consists of two independent parts. The first part is testing grid equipped 20 CPUs, 1Gb network interconnection, front-end server with UPS, Globus Toolkit software and VMWare software. The second part is production grid equipped 40 CPUs, 1Gb network connection, front-end server with UPS, Globus Toolkit software and VMWare software. Grid is connected to Internet and is going to be as a part of SlovakGrid national grid structure.

7.5 Research Projects

Study of co-evolution between genes and memes using artificial life methods and replicator theory (VEGA, 1/0804/08)

Project leader:	V. Kvasnička
Members UAPI:	J. Pospíchal, J. Laca, P. Lacko, P. Trebatický
Supported by:	Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences
Duration:	January 2008 – December 2010
Description:	Evolutionary methods of artificial life and replicator theory will be used to study co-evolution between genes and memes. A population will be composed of complexes built from one gene and one meme:

the complex will be called an m-gene. The propagation of m-genes in the population will be based on following three elementary operations: replication (m-gene is replicated onto another m-gene – a descendent, which may contains a mutated version of the parental m-gene; interaction (a memetic transfer from a donor to an acceptor) and extinction (m-gene is eliminated out of the population. By computational simulations "in silico" we shall study a co-evolution between memes and genes and identify various mechanisms of evolution of memes in population. The results of this study will enable to identify various mechanisms of social learning in multiagent systems, during which a transfer of knowledge is carried out from one agent to another.

Intelligent Embedded Systems (IVS) (VEGA, 1/0822/08)

Project leader:	T. Krajčovič for FIIT STU (UPSS)
Members UAPI:	J. Štefanovič, M. Čerňanský, M. Galbavý, J. Parízková, P. Drahoš, J. Laca
Supported by:	Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences
Duration:	January 2008 – December 2010
Description:	The project consists of three interconnected parts: (i) development of methods and tools for intelligent synthesis of complex systems including continuous-time and discrete-event dynamics; (ii) development of information and communication software tools and systems providing intelligent and real-time communication and control operation; (iii) development of application hardware and software modules of intelligent embedded software systems applicable in various processes (transportation, industry, health care, banking and service business).

Security and reliability in distributed computer systems and mobile computer networks (VEGA, 1/0649/09)

Project leader:	L. Hudec
Supported by:	Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences
Duration:	January 2009 – December 2011
Description:	Project deals with new methods and tools development for security and reliability implementation in distributed computers systems and mobile computer networks. Distributed system is presented by grid systems (clusters). The project solves the creation of real time grid system with reliability enhancement by means of standard operating system and the implementation of secure access control to grid resources by means of certificates. The last solved field in distributed environment is modular method for permanent or intermittent fault diagnostics. The diagnostic method is based on the knowledge of algebraic Petri net model of system, whereas the model is extended to probabilistic and time parameters. The mobile computer network is presented by wireless mobile ad hoc network. The project solves the problem of node failure, packets losses and end-to-end communication interruption from the point of communication reliability.

Connectionist Computational Models for Computer Grid Environment (VEGA, 1/0848/08)

Project leader: M. Čerňanský
Members UAPI: J. Pospíchal, M. Makula
Supported by: Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences
Duration: January 2008 – December 2010
Description: Common feedforward neural networks are a successful approach of artificial intelligence. Specialized recurrent neural networks were proposed to process structured data such as sequences, trees or graphs. Despite the high application potential of the latter type of neural networks, they have not yet become a widely used and accepted approach. The high computational requirements of these advanced training approaches have prevented recurrent networks to become widespread and generally accepted computing devices.

Study of emergence of strategies by neural networks (VEGA 1/0141/10)

Project leader: J. Pospíchal
Members UAPI: V. Kvasnička, P. Trebatický, Ľ. Varga, M. Kobza, J. Pálfy
Supported by: Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences
Duration: January 2010 – December 2011
Description: The project from the area of distributed artificial intelligence will study emergence of strategies of multiagent systems, where single agents have their cognitive organ implemented by a neural network. Agents, placed in a given environment, must adapt to carry out prescribed activities (avoidance of obstacles, games, cooperation, ethnic conflicts, communication, and emergence of social structures). Neural network will be taught by reinforcement (reward/punishment) method. Activity of agents will be evaluated only after a longer time delay, when an external evaluator will be able to classify their behaviour as successful or unsuccessful. The proposed method will allow a systematic change of weight coefficients of neural networks in such a way that the successfulness of their activities will progressively grow.

Universal modular industrial computer (APVV č. VMSP-P-0059-09)

Project leader: T.Krajčovič for FIIT STU (UPSS)
Members UAPI: J. Štefanovič
Supported by: Slovak Research and Development Agency
Duration: August 2009 – December 2010
Description: The main goal – a support of research and development in the company Voipac Technologies, Ltd. Partial goals – a development of a computer, which will be a suitable platform for increase in effectiveness of a development of a broad range of terminal equipment; support in a development of terminal equipment for companies, which do not have enough know-how; research and development of modern embedded computational systems by involving and with a support of an organisation for academy, which shall cause an increase of the

added value of the project; a production of a prototype, management support in production, sales and increase of its volume; job-creation.

Support for Parallel and Distributed Computing Education (KEGA 244-022STU-4/2010)

Project leader: M. Čerňanský

Members UAPI: L. Hudec, P. Kapec, P. Drahoš, M. Makula, D. Bernát, A. Kovárová, M. Kottman, O. Hirjak, V. Benešová, V. Solčány,

Supported by: Cultural and Educational Grant Agency of the Slovak Republic (KEGA) Ministry of Education SR

Duration: January 2010 – December 2011

Description: Project aim is to improve the ability of high school students to get use of methods and apparatus of parallel and distributed computing. The goal is to support education process of parallel and distributed processing on high schools programs by creating course materials and other supplementary documents related to high school educational process. Popularization of modern trends in parallel and distributed processing is also considered.

7.6 Publications

Journals

KOZÁK, Š. – ŠTEVEK, J.: Application of Hybrid Modelling and Control for Air-Handling for Air-Handling Unit. In: *International Review of Automatic Control*. Vol. 3, No. 3 (2010), ISSN 1974-6059, pp. 317-323.

MAKÝŠ, M. – KOZÁK, Š.: Hybrid Control Method Application for Traffic Lights. In: *International Review of Automatic Control*. Vol. 3, No. 3 (2010), ISSN 1974-6059, pp. 293-299.

MICHALÁK, J. – HUDEC, L.: Transparent Proxy for Secure E-mail. In: *Journal of Electrical Engineering*. Vol. 61, No. 3 (2010), ISSN 1335-3632, pp. 183-188.

PÁLFY, J. – SCHINDLER, F.: *XML* in Environment of SQL Server 2008. In: *Posterus.sk*. May 2010, ISSN 1338-0087, http://www.posterus.sk

PARÍZKOVÁ, J. – BELIANSKY, M.: Representation of executing SQL commands. In: *Informatika v škole*. No. 37 (2010), ISSN 1335-616X, pp. 4-12. (in Slovak)

ŠPERKA, M. – KAPEC, P.: Interactive Visualization of Abstract Data. In: *Science & Military*. Vol. 5, No. 1 (2010), pp. 84-90.

ŠTEVEK, J. – KOZÁK, Š.: Hybrid Modelling and Control of Thermal System. In: *Journal of Cybernetics and Informatics*. Vol. 10 (2010), ISSN 1336-4774, pp. 49-60.

TREBATICKÁ, O. – ŠPERKA, M.: Parametric generator of modular shapes. In: *G -Slovenský časopis pre geometriu a grafiku*. Vol. 7, No. 13 (2010), ISSN 1336-524X, pp. 45-54. (in Slovak)

International Conferences

BABINEC, Š. – POSPÍCHAL, J.: Using Combination of FIR Neural Networks in Time Series Prediction. In: *Mendel 2010*. 16th International Conference on Soft Computing,

Evolutionary Computation, Genetic Programming, Fuzzy Logic, Rough Sets, Neural Networks, Fractals, Bayesian Methods, Brno, Czech Republic, 2010, pp. 286-292.

CIGÁNEK, J. – KOZÁK, Š.: Comparison of Different Methods for Robust Controller Design. In: *Cybernetics and Informatics*. International Conference, Vyšná Boca, Slovak Republic, 2010, CD-ROM.

CIGÁNEK, J. – KOZÁK, Š.: Robust Controller Design Techniques for Unstable Systems. In: *Cybernetics and Informatics*. International Conference, Vyšná Boca, Slovak Republic, 2010, CD-ROM

KAPEC, P.: Visual Programming Environment Based on Hypergraph Representations. In: *Lecture Notes in Computer Science*. Vol. 6375, Computer Vision and Graphics, International Conference, ICCVG 2010, Springer-Verlag, 2010, pp. 9-16.

MAKÝŠ, M. – KOZÁK, Š.: Furnances Control Using MPC Hybrid. In: *Cybernetics and Informatics*. International Conference, Vyšná Boca, Slovak Republic, 2010, CD ROM.

POSPÍCHAL, J.: Synchronization in networks or how crickets chirp. In: *Mendel 2010*. 16th International Conference on Soft Computing, Evolutionary Computation, Genetic Programming, Fuzzy Logic, Rough Sets, Neural Networks, Fractals, Bayesian Methods. Brno University of Technology, Czech Republic, 2010, pp. 354-359.

ŠPERKA, M. – KAPEC, P. – RUTTKAY-NEDECKÝ, I.: Exploring and Understanding Software Behaviour Using Interactive 3D Visualization. In: *ICETA 2010*. 8th International Conference on Emerging eLearning Technologies and Applications, Stará Lesná, Slovak Republic, Košice Elfa, 2010, CD-ROM.

ŠPERKA, M. – DRAHOŠ, P.: Practical Library for Facial Animation. In: *INTELS´2010*. Intelligent Systems, Proceedings of the Ninth International Symposium, Vladimir, Russia, Moskva RUSAKI, 2010, pp. 118-123.

ŠPERKA, M. – KAPEC, P.: Visual Information Discovery in Large Data Sets. In: *INTELS´2010*. Intelligent Systems, Proceedings of the Ninth International Symposium, Vladimir, Russia, Moskva RUSAKI, 2010, pp. 123-128.

ŠTEVEK, J. – KOZÁK, Š.: Modeling and Control of Complex Systems. In: *Cybernetics and Informatics*. International Conference, Vyšná Boca, Slovak Republic, 2010, CD-ROM.

Local and National Conferences

BENEŠOVÁ, W. – FILLO, P. – KANIANSKY, M.: Course of Digital Image Processing at the Faculty of Informatics and Information Technologies (FIIT), Slovak University of Technology in Bratislava. In: *Spring Conference on Computer Graphics SCCG 2010*. Budmerice, Posters. Slovak Republic, 2010, pp. 27-30.

BLAHO, M. – PÁLFY, J. – SCHINDLER, F.: Improved XML Processing and Usage of Web Services in Matlab. In: *Technical Computing Bratislava 2010*. 18th Annual Conf. Proc. Bratislava, Slovak Republic, Bratislava RT Systems, 2010, CD-ROM.

BLAŽEK, S.: Binary tomography of 2D and 3D objects by evolutionary algorithms. In: *Cognition and Artificial Life IX*. Silesian University in Opava, Czech Republic, 2010, pp. 43-53. (in Slovak)

BLAŽEK, S.: Binary Tomography of 2D Objects Using Evolutionary Algorithms. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: V. Kvasnička, pp. 506-513.

CIGÁNEK, J. – BACHÚRIK, M. – ŠTEVO, S.: Intelligent Building Control – UML (ZigBee). In: *Technical Computing Bratislava 2010*, 18th Annual Conference Proceedings. Bratislava, Slovak Republic, Bratislava RT Systems, 2010, CD-Rom.

CIGÁNEK, J. – JANÁČEK, M. – ŠTEVO, S.: Intelligent Buildings – Busystems, MyHome. In: *Technical Computing Bratislava 2010*. 18th Annual Conference Proceedings. Bratislava, Slovak Republic, Bratislava RT Systems, 2010, CD-Rom

CHVOSTAĽ, F.: Monitoring, Collecting and Managing of Data Based on Mouse Dynamics. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: L. Hudec, pp. 411-418.

ČERŇANSKÝ, M.: Predictive Modelling Using Echo State Networks. In: *Cognition and Artificial Life IX*. Silesian University in Opava, Czech Republic, 2010, pp. 79-82. (in Slovak)

FILLO, P.: Hand Tracking and Gesture Recognition Using Echo State Neural Networks. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: V. Benešová, pp. 459-466.

GALBAVÝ, M. – STRNÁD, O.: Residual Risk Treatment. In: *Information Security 2010*. Bratislava, Slovak Republic, SASIB, 2010, pp. 19-24.

HLATKÝ, T.: Parallel Game-Tree Search on Multiprocessor Machine with Shared Memory. In: *Student Research Conference 2010*. Vol. 1, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: P. Lacko, pp. 483-490.

HUDEC, L.: Security Services for the Medical Information Transfer in the European Union. In: Informačná bezpečnosť 2010. Bratislava, Slovak Republic, SASIB, 2010, pp. 51-58. (in Slovak)

JAČALA, M. – BLAŽKO, M. – BRANDOBÚR, M. – HRDINA, M. – MACKO, M. – ČASNOCHOVÁ, H.: iTransit: The Public Transport Guide for Mobile Devices. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: M. Čerňanský, pp. 545-546.

KAPEC, P.: Visualizing Software Artifacts Using Hypergraphs. In: *Spring Conference on Computer Graphics SCCG 2010 in Cooperation with ACM and Eurographics, Budmerice*. Comenius University Bratislava, 2010, pp. 33-38.

KOTTMAN, M. – KAPEC, P.: Villie – a Hypergraph-Based Visual Programming Language. In: *ITAT 2010*. Information Technologies – Applications and Theory, Smrekovica, Slovak Republic, Seňa PONT s.r.o., 2010, pp. 69-74.

KVASNIČKA, V.: Mental Model of Sudoku. In: *Cognition and Artificial Life IX*. Silesian University in Opava, Czech Republic, 2010, pp. 207-213. (in Slovak)

LACKO, P.: Using Neural Networks in Filtering Noise from Image Data. In: *Cognition and Artificial Life IX*. Silesian University in Opava, Czech Republic, 2010, pp. 215-218. (in Slovak)

MAKÝŠ, M.: Control of Car Motion Using MPC Hybrid. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: Š. Kozák, pp. 435-442.

MARKO, P. – HUDEC, L.: Formal verification of network protocols using SPIN automated tool. In: *Datakon 2010*. Proceedings of the Annual Database Conference, Mikulov, Czech Republic. University of Ostrava, 2010, pp. 183-186.

MARKO, P.: Security Analysis of Network Protocols. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: L. Hudec, pp. 341-348.

POLÁK, I. – CIGÁNEK, J. – ŠTEVO, S.: Simulation of Recuperating Process. In: Technical *Computing Bratislava 2010*. 18th Annual Conference Proceedings. Bratislava, Slovak Republic, Bratislava RT Systems, 2010, CD-Rom

POSPÍCHAL, J.: Synchronization in Nets, or How Crickets Chirp. In: *Cognition and Artificial Life IX*. Silesian University in Opava, Czech Republic, 2010, pp. 289-294. (in Slovak)

VARGA, Ľ. – KVASNIČKA, V.: Reinforcement Learning in Multiagent Environment. In: *Cognition and Artificial Life IX*. Silesian University in Opava, Czech Republic, 2010, pp. 395-401. (in Slovak)

Books

KVASNIČKA, V. – POSPÍCHAL, J.: Cognitive Science, Artificial Intelligence and Bounded Rationality. In: *Social intelligence*. Podháj Európa, 2010. ISBN 80-89111-23-8, pp. 109-132. (in Slovak)

Parts of Books

KOVÁROVÁ, A. – SZALAYOVÁ, L.: Semantics in the Field of Widgets: A Case Study in Public Transportation Departure Notifications. In: *Semantics in Adaptive and Personalized Services: Methods, Tools and Applications*. Springer-Verlag Berlin Heidelberg, 2010, pp. 93-107.

KVASNIČKA, V. – POSPÍCHAL, J.: Technique of Semantic Tableaux in Logic . In: *Artificial Intelligence and Computer Science II*. Slovak University of Technology in Bratislava, 2010, pp. 209-261. (in Slovak)

Book Editors

KVASNIČKA, V. – POSPÍCHAL, J. – NÁVRAT, P. – LACKO, P. – TREBATICKÝ, P.: Artificial Intelligence and Cognitive Science II., Slovak University of Technology in Bratislava, 2010, 260 p. ISBN 978-80-227-3284-0 (in Slovak)

KELEMEN, J. – KVASNIČKA, V.: Cognition and Artificial Life X. Salesian University Opava, 2010. 422 p. ISBN 978-80-7248-589-5

7.7 Cooperation

Cooperation in Slovakia

- Faculty of Mathematics, Physics and Informatics, Comenius University Bratislava
- Faculty of Electrical Engineering, Technical University of Košice
- Ministry of Economy of the Slovak Republic
- Alfa Base Ltd., Bratislava
- Kybernetika Ltd., Košice
- Research Institute of Nuclear Power Engineering Inc., Trnava
- Schneider Electric Slovakia Ltd.
- Start Automation Ltd., Malacky
- Termoreg Ltd., Bratislava

International Cooperation

- University of Zagreb, Croatia
- Institute of Software Technology and Interactive Systems, Wienna University of Technology, Austria
- Institute Superieur d'Electronique de Paris (I.S.E.P.), Paris, France
- Institute Central European Initiative in Cognitive Science Education (joining universities in Vienna, Budapest, Zagreb and Bratislava)
- Faculty of Philosophy and Science, Silesian University in Opava
- Faculty of Informatics, Humboldt University in Berlin
- Rockwell Automation – Allen Bradley, USA
- Schneider Electric Deutchland, Germany
- Brno University of Technology, Czech Republic
- Technical University of Liberec, Czech Republic
- Technical University of Ostrava, Czech Republic

Visits of Staff Members

- *Ľ. Varga:* Faculty of Mathematics and Physics, Charles University in Prague, Czech Republic, February 8 – March 19, 2010
- *V. Solčány*: University of West Bohemia, Pilsen, Czech Republic, March 21-23, 2010
- *V. Kvasnička, J. Pospíchal, P. Lacko, M. Čerňanský, Ľ. Varga, S. Blažek:* Cognition and Artificial Life, Ostravice, Czech Republic, May 31 – June 4, 2010
- *P. Kapec:* ICCVG 2010, International Conference on Computer Vision and Graphics , Warsaw, Poland, September 19-23, 2010
- *J. Pospíchal:* Mendel 2010, Brno, Czech Republic, June 22-28, 2010
- *M. Čerňanský:* iDevcamp, Prague, Czech Republic, June 18-20, 2010

- *P. Kapec:* GraVisMa 2010, International Workshop on Computer Graphics, Vision and Mathematics, Brno, Czech Republic, September 6-9, 2010
- *J. Štefanovič:* Faculty of Information Technology, Brno University of Technology, Czech Republic, September 9, 2010
- *J. Štefanovič:* Vienna-TEC 2010, Vienna, Austria, October 15, 2010
- *P. Marko:* Datakon 2010, Mikulov, Czech Republic, October 16-19, 2010

Visits to the institute
- *Sonja Zentner Pilinsky*, Polytechnic of Zagreb, Poland, establishing of the Erasmus cooperation

7.8 Membership in Professional Organisations and Societies

Slovak Professional Organisations and Societies

The whole institute is a collective member of Slovak Artificial Intelligence Society.

Ladislav Hudec
- Slovak Association for Information Security (member, since 1996; president since 1998, vice-president, since 2006)
- Slovak Centre of the IET (member, since 1996; vice-president 1996-1998)
- Slovak Chapter of the ISACA (member, since 2002)

Vladimír Kvasnička
- Slovak Academic Society (founding member, since 1997)
- Slovak Artificial Intelligence Society (chairman, since 2000)
- Slovak Computer Science Society (member, since 1996)

Jiří Pospíchal
- Slovak Artificial Intelligence Society (member, since 2000)
- Slovak Computer Science Society (member, since 1996)

Martin Šperka
- Slovak Society for Informatics (member, since 2006)

International Professional Organisations and Societies

Michal Čerňanský
- INNS, International Neural Network Society (member, since 2006)

Ondrej Hirjak
- ACM, Association for Computing Machinery (member, since 2008)

Ladislav Hudec
- Information Systems Audit and Control Association (member, since 1998)
- IEEE, Institute of Electrical and Electronic Engineers (member, since 2006)
- IEEE Computer Society (member, since 2008)

Vladimír Kvasnička

– IEEE, Institute of Electrical and Electronic Engineers (member, since 2008)
– IEEE Computer Intelligence Society (member, since 2007)

Peter Lacko

– IEEE, Institute of Electrical and Electronic Engineers (member, since 2008)
– IEEE Computer Intelligence Society (member, since 2008)

Jiří Pospíchal

– EUROFUSE, EURO Working group on fuzzy sets (member, since 2007)
– IEEE, Institute of Electrical and Electronic Engineers (member, since 2007)
– IEEE Computer Intelligence Society (member, since 2008)

Viliam Solčány

– ACM, Association for Computing Machinery (member, since 2004)

Peter Trebatický

– IEEE, Institute of Electrical and Electronic Engineers (member, since 2007)
– IEEE Computer Intelligence Society (member, since 2008)

7.9 Other Activities

– National COST Coordinator, L. Hudec (since 1993)
– Member of the COST Senior Officials Committee, L. Hudec (since 1993)
– Artificial Intelligence Seminar organization
  `www.fiit.stuba.sk/~kvasnicka/Seminar_of_AI`
– Journal of Computing and Information Technology –V. Kvasnička (since 2005): members of advisory board
– MATCH Communications in Mathematical Chemistry – V. Kvasnička (since 1998): member of advisory board
– Neural Network World – V. Kvasnička (since 2001): member of advisory board
– Croatica Chimica Acta – V. Kvasnička (since 2002): member of advisory board
– Computing and Informatics (CAI) – V. Kvasnička: member of editorial board
– CESCG 2010 – Central European Seminar on Computer Graphics, Budmerice castle, Slovakia – M. Šperka: member of programme committee
– CI 2010 – 5th IASTED International Conference on Computational Intelligence, August 23-25, 2010, Maui, Hawaii, USA –V. Kvasnička: member of programme committee
– Cognition and Artificial Life X, Ostravice – V. Kvasnička, J. Pospíchal: member of programme committee
– Cybernetics and Informatics 2010 – International conference, February 10-13, 2010, Vyšná Boca, Slovakia – V. Kvasnička, J. Pospíchal: members of programme committee

- GCCP 2010 – 6th International Workshop on Grid Computing for Complex Problems, November 8-10, 2010, Bratislava, Slovakia – L. Hudec: member of programme committee
- International Seminar on Intelligent Systems, September 5-7, 2010, Košice – V. Kvasnička, J. Pospíchal: members of programme committee
- MENDEL 2010 – 16th International Conference on Soft Computing, Prague, Czech Republic – V. Kvasnička, J. Pospíchal: members of programme committee
- SAMI 2010 – 8th International Symposium on Applied Machine Intelligence and Informatics, January 28-30, 2010, Herľany, Slovakia – V. Kvasnička: member of programme committee
- SCCG 2010 – Spring Conference on Computer Graphics, Budmerice castle, Slovakia – M. Šperka: member of programme committee

8 Institute of Computer Systems and Networks

E-mail:	upss@fiit.stuba.sk
Web:	upss.fiit.stuba.sk
Tel:	+ 421 2 654 22 707
Fax:	+ 421 2 654 20 587

The Institute of Computer Systems and Networks offers undergraduate and graduate study programmes covering a broad range of courses in *Computer Engineering*. Our courses are built on sound theoretical fundamentals and are oriented towards developing independent creative thinking and ability to design solutions or to solve complex problems in the field of engineering expertise.

These courses cover basics and principles of mathematics, physics, basics of computing and programming, and concentrate mostly on the following domains: computer architecture, distributed systems and computer networks, design of digital systems, embedded systems.

The institute is responsible for education in the accredited degree programmes at each of the three levels of university education:

- Computer Systems and Networks (bachelor degree) substituted in academic year 2009/10 by Computer and Communication Systems and Networks (bachelor degree),
- Computer Systems and Networks (master degree) substituted in academic year 2009/10 by Computer and Communication Systems and Networks (master degree).

The institute has been active and successful in research and reflects in research the current development of computer engineering in the world. The dominant research interests of the institute include: design of digital systems and embedded systems, computer networks, creation of a novel effective formal specification tools, identification and implementation of automated engineering tasks in the area of HW/SW co-design of the mobile computing systems, development of new algorithms and methodology for providing reliability and fault tolerance, development of new approaches and methods for security enforcement in distributed systems and elaboration of new methodology for VLSI system design and testing at the functional level that is applicable for integrating into ASIC and PLD design.

8.1 Staff

Director
      Pavel Čičák, Assoc. Professor

Deputy Director
      Katarína Jelemenská, PhD.
      Elena Gramatová, Assoc. Professor

Administrative Department
      Katarína Pribišová

Teaching Staff
      Pavel Čičák, Assoc. Professor
      Boris Dado
      Jana Flochová, PhD.
      Elena Gramatová, Assoc. Professor
      Igor Grellneth, PhD.
      Pavol Horváth, Professor (part time)
      Ján Hudec
      Katarína Jelemenská, PhD.
      Milan Kolesár, Professor
      Margaréta Kotočová, Assoc. Professor
      Ivan Kotuliak, Assoc. Professor
      Tibor Krajčovič, Assoc. Professor
      Elena Tomalová (part time)
      Peter Trúchly, PhD.

Researchers
      Dušan Bernát

Full time PhD Students
      Jaroslav Abaffy
      Adrian Bagala
      Ján Balažia
      Adam Hlavatovič
      Martin Hrubý
      Matej Jurikovič
      Tomáš Kováčik
      Štefan Krištofík
      Peter Magula
      Tomáš Nečas
      Michal Olšovský
      Peter Pištek
      Mária Pohronská
      Michal Vrábel

8.2 Teaching

Undergraduate Study (Bc.)

Course	Semester	Credits	Lecturer
Computer Engineering Principles and Practice	Autumn	6	M. Kolesár
Computer Engineering Principles	Autumn	4	M. Kolesár
Computer Application Design	Spring	6	P. Čičák
Computer and Communication Networks	Spring	6	M. Kotočová
Convergence of Mobile and Wired Networks	Autumn Spring	6	I. Kotuliak
Digital Systems Description	Autumn	6	K. Jelemenská
Engineering Methods	Autumn	4	P. Čičák
Final Bachelor Project I-II	Autumn Spring	3-9	P. Čičák,
Logic Circuits	Spring	6	M. Kolesár
Machine Level Programming	Autumn	6	P. Čičák
Microcomputers	Autumn	6	T. Krajčovič
Peripheral Devices	Spring	4	P. Horváth
Principles of Communication Systems	Autumn	6	P. Trúchly
Programmable Logic	Autumn	6	M. Kolesár
Switching and routing in IP networks	Autumn	6	I. Grellneth
WAN Technologies	Spring	6	I. Grellneth

Master Study (Ing.)

Course	Semester	Credits	Lecturer
Communication Services and Networks	Autumn	6	M. Kotočová
Computing Systems Research	Autumn	2	E. Gramatová
Diagnostics and Reliability	Spring	6	E. Gramatová
Digital Systems Design	Spring	6	K. Jelemenská
Digital Systems Testing	Autumn	6	E. Gramatová
Diploma Project I-III (Computer and Communication Systems and Networks)	Autumn Spring	8-12-20	P. Čičák
Distributed Computer Systems	Autumn	6	D. Bernát
Embedded Systems	Autumn	6	T. Krajčovič
NGN Networks, Services and Protocols	Autumn	6	I. Kotuliak
Reconfigurable Digital Systems	Spring	6	J. Flochová
Satellite Systems	Spring	6	P. Trúchly
Team Project I-II (Computer and Communication Systems and Networks)	Autumn Spring	7-5	J. Hudec
Wireless Communication Systems	Autumn	6	I. Kotuliak

8.3 Theses

Bachelor (Bc.) Theses – graduates 2010

Study Programme Informatics

- Florek, Marian: *Media Server for VoIP Communication*. Supervisor: I. Kotuliak
- Háber, Tomáš: *Media Server for VoIP Communication*. Supervisor: I. Kotuliak
- Maruš, Matej*: Create a Web Client for VoIP Communication.*
  Supervisor: I. Kotuliak
- Prokop, Michal: *Creating of Web Client for VoIP Communication.*
  Supervisor: I. Kotuliak

Study Programme Computer Systems and Networks

- Bartek, Tomáš: *Multimedial Program System for Support of Teaching Petri Nets.*
  Supervisor: E. Tomalová
- Baumann, Martin: *Adaptive Application Firewall*. Supervisor: D. Bernát
- Bednár, Marian: *Multimedia Program System to Support Schooling in Creating of Synchronous Sequential Circuits*. Supervisor: E. Tomalová
- Behúň, Michal: *Automated Assessment of HDL Models*. Supervisor: K. Jelemenská
- Bendžala, Jakub: *Environmental Monitoring with ARM 9 Processor.*
  Supervisor: M. Pohronská
- Bíro, Matúš: *Congestion Avoidance in TCP/IP Networks*. Supervisor: M. Kotočová
- Broniš, Roman: *Measuring in VoIP Networks*. Supervisor: T. Kováčik
- Ďuríček, Maroš: *Monitoring System of Environment Based on ARM9.*
  Supervisor: M. Pohronská
- Fodora, Martin: *MP3 Player Based on ARM7*. Supervisor: M. Pohronská
- Gažík, Michal: *System for Assessment of Student Projects Based on Performance Indicators*. Supervisor: J. Hudec
- Harvanová, Valéria: *Modular Monitoring System*. Supervisor: T. Krajčovič
- Hlatký, Matej: *Evaluation System Based on Performance Indicators.*
  Supervisor: J. Hudec
- Holúbek, Daniel: *ALSA Device Driver*. Supervisor: T. Krajčovič
- Hozza, Tomáš: *Services for VoIP Networks*. Supervisor: I. Kotuliak
- Humený, Lukáš: *TCP Protocol Performance in Wireless Sensor Networks.*
  Supervisor: P. Trúchly
- Hvizdoš, Radek: *USB Protocol Framework for Single Chip Microcomputers.*
  Supervisor: T. Krajčovič
- Chovan, Adrián: *Guide Cisco – TGN and NQR*. Supervisor: I. Grellneth
- Chytil, Róbert: *Visualization Methods of Dropping Control*. Supervisor: M. Vrábel
- Jánoš, Martin: *Visualization of Congestion Avoidance Methods.*
  Supervisor: M. Vrábel

− Jarkovský, Michal: *Measuring Transfer Error-Rate over TCP Protocol.*
Supervisor: M. Vrábel

− Káčer, Lukáš: *Modular Monitoring System.* Supervisor: T. Krajčovič

− Kozemčák, Andrej: *Monitoring in Ethernet networks.* Supervisor: T. Kováčik

− Kubanda, Peter: *BFMA Tree Visualisation.* Supervisor: I. Grellneth

− Kubík, Pavol: *Comparison of the Virtualization Tools.* Supervisor: J. Abaffy

− Kurtý, Michal: *Data Transmission Delay in TCP/IP Network.*
Supervisor: M. Kotočová

− Lőrincz, Tomáš: *Statistical Evaluation of Communication in Computer Network.*
Supervisor: B. Dado

− Malovec, Ján: *Traffic Lights.* Supervisor: M. Pohronská

− Martinek, Valter*: Financing Module for Regional Network Academy Information
System.* Supervisor: B. Dado

− Masaryk, Tomáš: *Functional Core Environment Design for Digital System on Chip
(SoC) 1.* Supervisor: E. Gramatová

− Mikuš, Michal: *Support for Information Exchange in Work Group.*
Supervisor: B. Dado

− Moravanský, Matej: *The Design and Implementation of a System for Graphic
Visualization of Activity of Computer Cache Memory.* Supervisor: J. Hudec

− Morvay, Peter: *Queue Management in TCP/IP Networks.* Supervisor: M. Kotočová

− Nagy, Martin: *Congestion Management.* Supervisor: M. Kotočová

− Oros, Dávid: *Comparison of Virtualization Technologies.* Supervisor: J. Abaffy

− Pipík, Roman: *Tools for Support of Tuition of the Subject ASP.* Supervisor: P. Čičák

− Pirháč, Martin: *Congestion Control in TCP/IP Networks.* Supervisor: M. Kotočová

− Pisarovič, Michal: *Traffic Lights.* Supervisor: M. Pohronská

− Podstrelenec, Matej: *Illustration of Communication Functions.*
Supervisor: M. Kotočová

− Polák, Jakub: *Multimedia Education Module for Verilog.*
Supervisor: K. Jelemenská

− Severínová, Hana: *Saving and Resuming a State of a Process in OS Linux.*
Supervisor: J. Abaffy

− Svetlík, Martin: *Generating Test Algorithms for RAM Memories.*
Supervisor: E. Gramatová

− Takács, Tomáš: *Routing Protocols in Sensor Networks.* Supervisor: I. Kotuliak

− Tamaškovič, Peter: *Firmware for Operating System of Elevator.*
Supervisor: T. Krajčovič

− Vícen, Jozef: *Support Education of Petri Nets Issue – HTML Application.*
Supervisor: E. Tomalová

− Virkler, Róbert: *Performance of Optical Networks in Metropolitan Areas.*
Supervisor: I. Kotuliak

- Vojtko, Martin: *Exprimental Cycle Computer with USB Interface*.
  Supervisor: T. Krajčovič

Master (Ing,) Theses – graduates 2010

Study programme Information Systems

- Tomovič, Ivan: *Comparison of Written Documents with Parallel Data Processing*.
  Supervisor: B. Dado

Study Programme Computer Systems and Networks

- Balažia, Ján: *Ethernet II Based Routing Using Helping Protocol*.
  Supervisor: B. Dado

- Bielik, Martin: *Modelling of VoIP Network*. Supervisor: I. Kotuliak

- Danillová, Eva: *B2BUA Agent in VoIP Environment.* Supervisor: I. Kotuliak

- El Hamud, Riad: *A Software Control of an Autonomous Vehicle*.
  Supervisor: D. Bernát

- Fekete, Martin: *Asymmetric Hardware Cipher*. Supervisor: T. Krajčovič

- Figura, Miroslav: *Automatic Design of Combinative Logic Networks TONT*.
  Supervisor: M. Kolesár

- Gómez, Ramón Vladimir Leandro: *Microprocessor Control of an Autonomous Vehicle.* Supervisor: D. Bernát:

- Gula, Štefan: *IPTV via VLC*. Supervisor: I. Grellneth

- Hájek, Vladimír: *Medium Access Control in Wireless Sensor Networks*.
  Supervisor: P. Trúchly

- Hrubý, Martin: *QoS in MPLS Networks*. Supervisor: M. Kotočová

- Hupka, Šimon: *Dataflow Modification in TCP/IP Networks*.
  Supervisor: M. Kotočová

- Huska, Peter: *Simulations of Discrete Event Systems*. Supervisor: J. Flochová

- Choleva, Michal: *Programming Supervisor Algorithms*. Supervisor: J. Flochová

- Chovanec, Marián: *SCEP Enhancement.* Supervisor: Ľ. Batěk

- Jakubis, Peter: *SCVP (Server-based Certificate Validation Protocol) with OCSP (Online Certificate Status Protocol)*. Supervisor: Ľ. Batěk

- Jančík, Roman: *Kernel Optimization for Cluster Node*. Supervisor: D. Bernát

- Kelemen, Tomáš: *User Positioning in IMS*. Supervisor: I. Kotuliak

- Kiršner, Peter: *Utilization of GPS for Positioning.* Supervisor: B. Dado

- Koine, Peter: *Interactive Presentation System*. Supervisor: K. Jelemenská

- Komáromy, Róbert: *Classification and Categorization of Programs*.
  Supervisor: P. Košinár

- Kostroš, František: *Program for NMEA Sentence Processing*.
  Supervisor: P. Trúchly

- Kováč, Tomáš: *Software Support for Designing Computer Networks*. Supervisor: P. Čičák
- Krištofík, Štefan: *Fault Modelling Using Stochastic automata.* Supervisor: J. Flochová
- Liška, Lukáš: *Payment System for IMS*. Supervisor: I. Kotuliak
- Lörinc, Benjamín: *Hardware Encryptor with Public-Key Encryption*. Supervisor: T. Krajčovič
- Michalec, Vladimír: *Application for Filtering Users' Access to Web Pages*. Supervisor: I. Grellneth
- Mika, Miroslav: *Distance Education Support in Subject Digital Systems Description*. Supervisor: K. Jelemenská
- Mišenčík, Marek: *Multimedia System*. Supervisor: E. Tomalová
- Moťovský, Emil: *Reliable Design of Self-Testing and Repairing Memories*. Supervisor: E. Gramatová
- Nemsila, Maroš: *Analysis of Security in IP Networks*. Supervisor: I. Grellneth
- Nosáľ, Michal: *Visualization of Verilog Digital System Model*. Supervisor: K. Jelemenská
- Ochodnický, Daniel: *Tool for Controlling Programs through Voice*. Supervisor: P. Horváth
- Olšovský, Michal: *TCP Protocol Performance*. Supervisor: M. Kotočová
- Pavlovčin, Jozef: *MAC Methods of Wireless Sensor Networks*. Supervisor: P. Trúchly
- Pivarč, Peter: *Multimedia System*. Supervisor: E. Tomalová
- Rada, Tomáš: *System Diagnostics Based on Models*. Supervisor: J. Flochová
- Sakhia, Orgil: *Cerebral Cortex Activation Model*. Supervisor: P. Hubka
- Sedláček, Matúš: *Multimedia System*. Supervisor: E. Tomalová
- Schusterová, Zuzana: *Security of Technology IP Multicast in Ethernet Networks*. Supervisor: I. Grellneth
- Špaček, Pavol: *MPLS Technology in Practice*. Supervisor: I. Grellneth
- Šúň, Peter: *Implementation of Window Filtering Platform Architecture in Domain of Infiltration Detection.* Supervisor: T. Kaláb
- Šuvada, Martin: *Simulation VoIP Network Base on SIP Protocol*. Supervisor: I. Kotuliak
- Tölgyessy, Michal: *Transient Charge Processing Software Used for Dielectric and Semiconductor Research.* Supervisor: V. Nádaždy
- Tkačov, Peter: *Detection and Animation of Static Hazards in Combinational Logic Circuits*. Supervisor: M. Kolesár
- Turoň, Ján: *Visualization of SystemC Model Simulation*. Supervisor: K. Jelemenská
- Valko, Tomáš: *Tools for Providing Quality of Services*. Supervisor: M. Kotočová

- Varga, Richard: *Simulations of Discrete Events System*. Supervisor: J. Flochová

- Viceník, Martin: *Analysis of Irregularities in Image Samples*. Supervisor: B. Dado

- Zatloukal, Michal: *Detection and Animation of Dynamic Hazards in Combinational Logic Circuits*. Supervisor: M. Kolesár

- Zelman, Andrej: *Activation Model of Cerebral Cortex*. Supervisor: P. Hubka

- Zubčák, Peter: *Client System for MyProxy Server*. Supervisor: A. Bagala

Doctoral (PhD.) Theses

Student name: Juraj Ďuďák
Degree program: Computer Hardware and Systems
Thesis title: *Contribution to Industrial Communication Standards*
Supervisor: Pavel Čičák, Associate Professor
Defended on: June 28, 2010
Annotation: Description of industrial application protocol MODBUS. State diagram of communication nodes in MODBUS protocol – master and slave. The weak point analysis of MODBUS over serial line and possibilities of its extension. The proposition of MODBUS protocol extension – mMODBUS specification. Definition of functional specification of proposed modifications. Description of the formal method "Coloured Petri nets", which has been used for description of parallel processes and communication protocols. Creation of model communication in MODBUS over serial line protocol using formal method Coloured Petri nets. Design of model proposed extensions of MODBUS protocol. Verification of created models by the state space analysis. Implementation of proposed MODBUS protocol modifications titled as mMODBUS on the Cypress microcontroller family.

8.4 Research Laboratories

Computer Networks Laboratory I

Manager: P. Čičák
Contact: `pavel.cicak@stuba.sk`
Description: The research and teaching laboratory is predefined for teaching Computer networks I and Computer networks II to undergraduates in the study programme Computer and Communication systems and networks. The students are to show their practical and theoretical skills. They are involved in design, implementation and verification of applications for computer networks. They are trained to install, configure and operate local and wide-area networks. The laboratory is equipped with computers connected to the Internet and modern network components and respective software tools necessary to gain practical skills in the area of computer networks.

Computer Networks Laboratory II

Manager: P. Čičák
Contact: `pavel.cicak@stuba.sk`

Description: This research and teaching laboratory is dedicated for teaching WAN technologies to undergraduates, communication services and networks and distributed computer systems to graduates in the study programme Computer and communication systems and networks. Students gain and prove their practical and theoretical skills. The skills are developed that enable students to design, implement, and troubleshoot scalable local and wide-area networks, create and deploy a global intranet, using routers and switches for multiprotocol client hosts and services. Students are also involved in design, implementation and verification of applications for computer networks and parallel processing. The laboratory is equipped with computers, Internet connection, newest modern network components and necessary software tools.

Embedded Systems Laboratory

Manager: T. Krajčovič
Contact: `tibor.krajcovic@stuba.sk`
Description: The research and teaching laboratory is predefined for teaching embedded systems, microprocessors and microcomputers, computer interfacing and digital equipment construction to undergraduates in the study programme Computer and Communication Systems and Networks, orientation in Computer Engineering. The students are to prove practical and theoretical skills. They are involved in design, implementation and verification of the applications for microprocessors and other digital devices in real-time applications. The laboratory is equipped with modern computers with internet connection and other hardware and software components and tools (digital oscilloscopes, logic analyzers, in-circuit emulators, Intel Atom and PXA based embedded system development kits) necessary for practical teaching.

VLSI Design Laboratory

Manager: J. Hudec
Contact: `jan.hudec@stuba.sk`
Description: The research and teaching laboratory is predefined for teaching of programmable logic devices in graduate study of Computer and Communication systems and networks, orientation in Computer engineering. The students are targeted for proving practical and theoretical skills. They are involved in design, implementation and verification of applications for programmable logic and gate arrays. The laboratory is equipped with modern computers with internet connection and other hardware and software components and tools (XILINX ISE WebPack, MODELSIM) for programmable circuits CPLD and FPGA practical teaching.

Digital Systems Description and Design Laboratory

Manager: K. Jelemenská
Contact: `katarina.jelemenska@stuba.sk`
Description: The research and teaching laboratory is predefined for teaching digital system description to undergraduates and digital systems design, test-

ing, diagnostics and reliability and reconfigurable digital systems to graduates in the study programme Computer and Communication systems and networks. Students are to prove their practical and theoretical skills. They are involved in design, description, implementation and verification of small to medium digital systems. Laboratory is equipped with Internet connected computers, RC10 FPGA boards and necessary software tools to gain practical skills in the area of digital systems design – FPGA Advantage and DK Design Suite.

8.5 Research projects

Use Cases for Interconnected Testbeds and Living Labs
(EUREKA/CELTIC project no. CP5-018)

Project leader:	I. Kotuliak for FIIT STU
Members UPSS:	T. Kováčik
Duration:	July 2008 – December 2010
Description:	The Panlab work was initiated to define the mechanisms to engage test and research enabling resources into a common shared platform. The Living Labs concept offers a research and innovation platform which can enhance economical, social and cultural systems cross-regionally and cross-nationally. The aims of NetLab are to develop a platform of interconnected test beds involving 3 different countries together with different Living Labs designed to tackle their interoperability, their scalability, their complexity, mobility aspects as well as security and QoS requirements coupled with validation in large scale testing environments. A "user centric design" paradigm will be followed to capture the stakeholders' (users, operators, industry, SMEs) feedback. This will allow refining Panlab/Living Lab concepts with respect to different issues (organization, business models, legal aspects, security, IP protection) and to develop 2 IMS and DVB-H related use cases involving Panlab and Living Labs scenarios.

Security and Reliability in Distributed Computer Systems and Mobile Computer Networks (VEGA, 1/0649/09)

Project leader:	P. Čičák for UPSS
Members UPSS:	M. Kolesár, D. Bernát, B.Dado, J. Flochová, J. Hudec, K. Jelemenská, M. Kotočová, T. Krajčovič, I. Grellneth, J. Abaffy, M. Pohronská, J. Michalák, P. Vilhan, P. Pištek, M. Jurikovič, P. Magula
Supported by:	Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences
Duration:	January 2009 – December 2011
Description:	Project deals with new methods and tools for development for security and reliability implementation in distributed computers systems and mobile computer networks. Distributed system is presented by grid systems (clusters). The project solves the creation of real time grid system with reliability enhancement by means of standard operating system. Further, it solves the implementation of secure access control to grid resources by means of certificates. The last solved field in dis-

tributed environment is modular method for permanent or intermittent fault diagnostics. The diagnostic method is based on the knowledge of algebraic Petri net model of system, whereas the model is extended to probabilistic and time parameters. The mobile computer network is presented by wireless mobile ad hoc network. The project solves the problem of node failure, packets losses and end-to-end communication interruption from the point of communication reliability.

Intelligent Embedded Systems (IVS) (VEGA, 1/0822/08)

Project leader:	T. Krajčovič for FIIT STU
Members UPSS:	J. Flochová, P. Čičák
Supported by:	Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences
Duration:	January 2008 – December 2010
Description:	The project consists of three interconnected parts: (i) development of methods and tools for intelligent synthesis of complex systems including continuous-time and discrete-event dynamics; (ii) development of information and communication software tools and systems providing intelligent and real-time communication and control operation; (iii) development of application hardware and software modules of intelligent embedded software systems applicable in various processes (transportation, industry, health care, banking and service business).

Innovative approaches for improvement of delivered Quality of Service in the Next Generation Networks (NGN) (VEGA, 1/0243/10)

Project leader:	I. Kotuliak
Members UPSS:	P. Trúchly, J. Flochová. M. Kotočová, T. Kováčik, I. Grellneth, M. Vrábel
Supported by:	Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences
Duration:	January 2010 – December 2011
Description:	Converged networks, deploying unified platform for the multimedia and data transmission, are the main trends for telecommunication operators. The soft switch architecture and distributed architecture of IP Multimedia Subsystem (IMS) are main implementations of such networks being implemented currently. This project is oriented into two parts related to general implementation of the converged network: (i) access layer of the network based on optimization of performance parameters which influence the service quality perception by end parties. The project research is aimed at wireless and metropolitan optical environments. (ii) service quality provision in the IP/MPLS network. In this part, the project deals with queue management and optimization, fast recovery from network failure as well as fast convergence of routing protocols. Other research is based on latest trends in area of Future Generation Internet. Third part related to IMS addresses the investigation of statistical properties of the traffic, which can influence the whole system output.

Universal Modular Industrial Computer (APVV, VMSP-P-0059-09)

Project leader:	T.Krajčovič for FIIT STU
Supported by:	Slovak Research and Development Agency
Duration:	August 2009 – December 2010
Description:	The main goal – a support of research and development in the company VOIPAC Technologies Ltd. Partial goals – a development of a computer, which will be a suitable platform for increase in effectiveness of a development of a broad range of terminal equipment; support in a development of terminal equipment for companies, which do not have enough know-how; research and development of modern embedded computational systems by involving and with a support of an organization for academy, which shall cause an increase of the added value of the project; a production of a prototype, management support in production, sales and increase of its volume; job-creation.

Support of Building a Center of Exellence for Smart Technologies, Systems, and Services (ITMS 26240120005)

Project leader:	T. Krajčovič for UPSS
Members UPSS:	I. Kotuliak
Supported by:	European Structural Fund
Duration:	May 2009 – April 2011
Description:	The project aims at following: concentration of the top research-educational teams of smart technologies, systems, and services in Bratislava region; improving the quality of technological infrastructure and smart technology development of systems and services including the information and communication infrastructure modernization; improving effectiveness of the know-how transfer between academy and industry sphere in the area of smart technologies, systems, and services; improving integration into international cooperation in research and development in the field of smart technologies.

Support of Building a Center of Excellence for Smart Technologies, Systems, and Services II (ITMS 26240120029)

Project leader:	T. Krajčovič for UPSSM. Bieliková
Members UPSS:	I. Kotuliak
Supported by:	European Structural Fund
Duration:	January 2010 – January 2013
Description:	The objective is to improve, build further, and put into operation the technological infrastructure that would enable to sustain the center of excellence of research and development for enterprise information source processing and presentation with the application of advanced distributed architectures for parallel processing of extensive sources of semistructured data and high performance computing for complex applications.

8.6 Publications

Journals

GRELLNETH, I. – BIELIK, M. – GULA, Š. – MARKO, P. – MICHALEC, V. – PÉTI, P. – SCHUSTEROVÁ, Z.: VLAB at the Institute of Computer Systems and Networks FIIT STU. In: *Acta Electrotechnica et Informatica*. Vol. 10, No. 2 (2010), ISSN 1335-8243, pp. 65-71.

POHRONSKÁ, M. – KRAJČOVIČ, T.: Using Multiple FPGA Implemented Watchdogs for Improving of Embedded Systems Reliability. In: *Journal of Cybernetics and Informatics*. Vol. 11 (2010), ISSN 1336-4774, pp. 41-48.

International Conferences

ABAFFY, J. – KRAJČOVIČ, T.: Software Support for Multiple Hardware Watchdog Timers in the Linux OS. In: *Applied Electronics 2010*. International Conference on Applied Electronics Pilsen, University of West Bohemia, Pilsen, Czech Republic, 2010, pp. 17-19.

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PODHRADSKÝ, P. – TRÚCHLY, P. – ZEMAN, T. – HRAD, J.: Multimedia ICT in Vocational Training. In: *Proceedings ELMAR-2010*. 52nd International Symposium ELMAR-2010, Zadar, Croatia, Croatian Society Electronics in Marine, 2010, pp. 163-166.

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TUROŇ, J. – JELEMENSKÁ, K.: Contribution to Graphical Representation of SystemC Structural Model Simulation. In: *7th FPGAworld Conference*. Copenhagen, Denmark, Copenhagen FPGAworld, 2010, pp. 42-48.

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BUDINSKÝ, P. – MARCINČIN, R. – PALAJ, T. – ŠTRBA, J. – UBREŽI, Ľ.: Universal Virtual Verification Panel of Logical Circuits. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: P. Pištek, pp. 455-456.

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BURDA, F.: Dynamic Generation of Web Pages by Using Unix Shell. In: *Student Research Conference 2010*. Vol. 1, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: M. Kotočová, pp. 257-263.

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HARVANOVÁ, V.: Home Monitoring System as a Tool for User Comfort and Security. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: T. Krajčovič, pp. 381-387.

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MACKO, D.: Development of Visualization Environment for Supporting the Digital System Design. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: K. Jelemenská, pp. 419-426.

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MALOVEC, J. – PISAROVIČ, M.: Traffic Lights Model. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: M. Pohronská, pp. 453-454.

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PIŠTEK, P.: Optimization of Multiplexer. In: *PAD 2010 – Computer Architectures and Diagnostics 2010*. Czech-Slovak seminar for PhD students, Češkovice, FIT VUT Brno 2010, pp. 69-74. (in Slovak)

POHRONSKÁ, M.: Implementation of Expert Systems in Embedded and Reconfigurable Systems. In: *PAD 2010 – Computer Architectures and Diagnostics 2010*. Czech-Slovak seminar for PhD students, Češkovice, FIT VUT Brno, 2010, pp. 133-138. (in Slovak)

POHRONSKÁ, M.: Methods for Implementing Expert Systems in Embedded and Real Time Systems. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: T. Krajčovič, pp. 373-380.

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TOMOVIČ, I.: Grid Frameworks and Documents Comparison. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: B. Dado, pp. 427-434.

TUROŇ, J.: Graphical Representation and Simulation of SystemC Models. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: K. Jelemenská, pp. 349-356.

VALIČEK, M.: Software Implementation of Advanced Server Watchdog. In: *Student Research Conference 2010*. Vol. 2, 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Supervisor: T. Krajčovič, pp. 396-403.

Part of Books

ABAFFY, J. – KRAJČOVIČ, T.: PI-ping – Benchmark Tool for Testing Latencies and Throughput in Operating Systems. In: *Innovation in Computing Sciences and Software Engineering*. Springer Science+Business Media B.V. 2010, ISBN 978-90-481-9111-6, pp. 557-560.

JELEMENSKÁ, K. – ČIČÁK, P. – JURIKOVIČ, M. – PIŠTEK, P.: Digital System Description Knowledge Assessment. In: *Technological Developments in Networking, Education and Automation.* Springer Science+Business Media B.V. 2010, ISBN 978-90-481-9150-5, pp. 127-132.

Book Editors

KOTÁSEK, Z. – GRAMATOVÁ, E. – ARMENGAUD, E. – FUEGGER, M. – STEININGER, A. – ZIMMERMANN, H. –VIERHAUS, T. – LECHNER, J.: 13th IEEE International Symposium on Design and Diagnostics of Electronic Circuits and Systems, Vienna, Austria, IEEE, 2010. 405 p. ISBN 978-1-4244-6610-8

8.7 Cooperation

Cooperation in Slovakia

- Institute of Informatics, Slovak Academy of Sciences, Bratislava
- Faculty of Electrical Engineering and Information Technology, Slovak University of Technology in Bratislava
- Faculty of Electrical Engineering and Informatics, Technical University of Košice
- Regional Cisco Networking Academy, Faculty of Electrical Engineering and Informatics, Technical University of Košice,

- Faculty of Natural Sciences, Matej Bel University in Banská Bystrica
- Faculty of Management Science and Informatics, University of Žilina
- Faculty of Electrical Engineering, University of Žilina
- Regional Cisco Networking Academy, Faculty of Management Science and Informatics, University of Žilina
- Faculty of Informatics, Bratislava School of Law
- Abonus Ltd.
- Asseco Slovakia Ltd.
- CISCO Systems Slovakia Ltd.
- Datalan Ltd.
- GTEC Ltd.
- Hewlett-Packard Slovakia Ltd.
- IBM Slovakia Ltd.
- Molpir Ltd.
- Siemens Enterprise Communications Ltd.
- Soitron Ltd.
- Spinet Ltd.
- Tempest Ltd.

International Cooperation
- Department of Computers, Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Republic
- Faculty of Information Technologies, Brno University of Technology, Czech Republic
- Department of Computer Science and Engineering, Faculty of Applied Science, University of West Bohemia in Pilsen, Czech Republic
- Faculty of Computer Systems and Control, Technical University in Sofia, Bulgaria
- Hochschule für Telekommunikation Leipzig
- INRIA, Grenoble, France
- Institut Superieur D´Electronique de Paris, France
- University of Maribor, Maribor, Slovenia
- Heinz Nixdorf Institute, University of Paderborn, Germany
- Microelectronic Systems Institute, TU Darmstadt, Germany
- Fraunhofer Institute for Integrated Circuits, Dresden, Germany

Visits of Staff Members
- *I. Kotuliak*: Heterogeneous Networks 2010, Zakopane, Poland, January 13-16, 2010

- *E. Gramatová:* IEEE DDECS 2010 program committee meeting, Vienna, Austria, February 18-19, 2010

- *E. Gramatová:* IEEE International Symposium on Design & Diagnostics of Electronic Circuits and Systems 2010, Vienna, Austria, April 14-16, 2010

- *I. Kotuliak, T. Kováčik:* IP Telephony workshop 2010, Prague, Czech Republic, April 29-30, 2010

- *J. Hudec:* ITI 2010, Information Technology Interfaces, Cavtat, Croatia, June 20-24, 2010

- *I. Kotuliak, T. Kováčik, K. Konôpková.::* ONIT 2010, 2nd Open NGN and IMS Testbeds Workshop, Berlin, Germany, May 16-25, 2010

- *M. Pohronská:* Workshop Embedded applications in MATLAB and Simuling Systems, Prague, Czech Republic, April 27-28, 2010

- *K. Jelemenská, M. Jurikovič*: EDULEARN 2010, International Conference on Education and New Learning Technologies, Barcelona, Spain, June 29 – July 8, 2010

- *J. Flochová*: Czech Technical University, Prague, Czech Republic, June 24-25, 2010

- *P. Čičák:* NAG, Network Academy Games 2010, Debrecen, Hungary, June 24-26, 2010

- *J. Abaffy:* "Fairytales of our Childhood" Youth in Action Programme, Youth Exchange, Ankara, Turkey, July 9-18, 2010

- *K. Jelemenská, P. Pištek, M. Pohronská:* Institut Superieur D´Electronique de Paris, Erasmus mobility, Paris, France, August 30-September 3, 2010

- *K. Jelemenská, M. Jurikovič*: FPGA World 2010, Kodaň, Denmark, September 5-10, 2010

- *T. Krajčovič, M. Pohronská, J. Abaffy, P. Pištek,* Applied Electronics 2010, Pilsen, Czech Republic, September 8-11, 2010

- *P. Čičák, E. Gramatová, A. Hlavatovič, K. Jelemenská, M. Jurikovič, J. Abaffy, P. Pištek, M. Pohronská:* PAD 2010, Češkovice, Czech Republic, September 13-15, 2010

- *P. Trúchly:* Elmar 2010, Zagreb, Croatia, September 13-18, 2010

- *T. Kováčik:* NAEC 2010, Networking and Electronic Commerce Conference, Riva del Garda, Italy, October 6-10, 2010

- *I. Kotuliak:* Telekom Innovation Day Workshop, Berlin, Germany, October 6-7, 2010

- *I. Kotuliak:* WMNC 2010, Joint IFIP Wireless and Mobile Networking Conference, Budapest, Hungary, October 12-15, 2010

- *T. Krajčovič:* Tomas Bata University, Zlín, Czech Republic, October 22, 2010

- *P. Trúchly:* LdV MLARG Project Meeting, Czech Technical University, Prague, Czech Republic, October 21-23, 2010

- *I. Kotuliak:"* HBB-next" Proposal Preparation Meeting, Munich, Germany, November 8, 2010

- *E. Gramatová:* Faculty of Information Technology, Brno University of Technology, Brno, Czech Republic, December 2, 2010
- *E. Gramatová, P. Čičák:* Czech Technical University, Prague, Czech Republic, December 10, 2010

Visits to the Institute

- *Matthias Moschik,* Faculty of Telecommunication, University of Applied Sciences, Leipzig, Germany, January – May 2010
- *Group of 15 Erasmus students,* Institute Supérieur d´Electronique de Paris, France, June – July 2010
- *Michael Maruschke,* Hochschule für Telekommunikation Leipzig, Germany, October 2010
- *Stephane Massner,* Hochschule für Telekommunikation Leipzig, Germany, October 2010

8.8 Membership in Professional Organisations and Societies

Slovak Professional Organisations and Societies

Pavel Čičák
- Slovak Centre of the IEE (member, since 1999)

Elena Gramatová
- Slovak Society for Computer Science (member, since 1995)

Milan Kolesár
- Slovak Centre of the IEE (member, since 2001)
- Slovak Society for Computer Science (member, since 1995)

International Professional Organisations and Societies

Pavel Čičák
- IET, Institute of Engineering and Technology (fellow, since 2000)
- ECUK, Engineering Council UK (Chartered Engineer, since 2000)

Jana Flochová
- IEEE, Institute of Electrical and Electronic Engineers (member, since 1998)

Elena Gramatová
- IEEE, Institute of Electrical and Electronic Engineers (member, since 1995)
- TTTC, Test Technical Technology Council (contact person for SR, since 1996)

Igor Grellneth
- CEE CCNP RAIC – Central and Eastern Europe Cisco Certified Networking Professional Regional Academy Instructor Community (member, since 2006)

Ján Hudec
- New York Academy of Sciences, member (member, since 1997)

Tibor Krajčovič
- Slovak Commission for UNESCO. Informatics, Information and Communication Technologies (member, since 1994)

Mária Pohronská
- IEEE, Institute of Electrical and Electronic Engineers (member, since 2009)

8.9 Other Activities

- Newsletter of Cisco Networking academy in Slovakia – P. Čičák, I. Grellneth: members of editorial board

- Slovak Expert Council for Informatics in Education – P. Čičák, E. Gramatová: members

- Working Group of the Accreditation Commission of Slovakia for Information Sciences and Technologies – E. Gramatová, member

- CELTIC NETLAB: Use Cases for Interconnected Testbeds and Living Labs – I. Kotuliak, T. Kováčik: members of team and programme committee

- Erasmus Sommer School 2010 – June 28 – July 23, 2010 – P Čičák: organizing team member, E. Gramatová, K. Jelemenská, T. Krajčovič: organizing team members and teachers, J. Abaffy, B. Dado, A. Hlavatovič, M. Jurikovič, P. Pištek, M. Pohronská: instructors

- Networks Technologies Summer School 2010 – July – August 2010 – P Čičák: organizing team member

- IJMIT, International Journal of Managing Information Technology – K. Jelemenská, J. Abaffy: editorial board members

- BEC 2010 – 12th Biennial Baltic Electronic Conference, October 2010, Tallinn, Estonia – E. Gramatová: member of programme committee

- DDECS 2010 – 13th IEEE Symposium on Design and Diagnostics of Electronic Circuits and Systems, April 2010, Vienna, Austria – E. Gramatová: programme chair, member of programme and steering committees

- ETS 2010 – 15th IEEE European Test Symposium, May 2010, Prague, Czech Republic – E. Gramatová: member of programme committee

- EWDTS 2010 – East-West Design&Test Symposium, September 2010, St. Petersburg, Russia – E. Gramatová: member of programme committee

- FPL 2010 – 20th International Conference on Field Programmable Logic and Applications, August 2010, Milano, Italy – E. Gramatová: member of programme committee

- ICCIT 2010 – International Conference on Convergence and Hybrid Information Technology, November 30-December 2, 2010, Seoul, South Korea – I. Kotuliak: member of programme committee

- ngnlab.eu 2010 workshop – I. Kotuliak: member of programme committee

- ICETA 2010 – 8th International Conference on Emerging E-Learning Technologies and Applications, October, 2010, Stará Lesná, High Tatras, Slovakia – P. Čičák, E. Gramatová, K. Jelemenská: members of programme committee

- MEMICS 2010 – Annual Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, October 2010, Mikulov, Czech Republic – E. Gramatová: member of programme committee

- PAD 2010– Czech and Slovak Seminar on Computer Architectures and Diagnostics, September 2010, Blansko, Czech Republic – E. Gramatová: member of steering committee, E. Gramatová, K. Jelemenská: members of programme committee

9 Institute of Informatics and Software Engineering

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Fax:	+ 421 2 654 205 87

The main mission of the Institute of Informatics and Software Engineering is to contribute to the mission of Slovak University of Technology and to the mission of the Faculty of Informatics and Information Technologies in the range of its competencies, in areas bounded by and related to informatics and software engineering. Among the related areas, it is oriented especially to artificial intelligence in research of knowledge approaches in solving problems of informatics and software engineering, and to information systems respecting their close relation to typical problem domains in software engineering.

Within the mission, the institute especially

- contributes through its research to development of knowledge in the areas of science and technologies belonging to the mentioned areas,
- provides successful and high-quality study programmes in areas of its competencies at each of the three levels of university education, in which
  - graduates with the first degree will be excellently prepared for Slovak and European labour market and will be able to take care of themselves in their own business and also to create employment opportunities to others,
  - graduates with the second degree will have acquired competencies and abilities to be leaders of specialist teams with deep expert knowledge and ability of high creativity,
  - doctoral study graduates will be able to bring new original and innovative solutions of complex problems.

The institute is responsible for education in the following accredited degree programmes:

- Informatics (bachelor degree),
- Information Systems (master degree),
- Software Engineering (master degree),
- Software Systems (doctoral degree).

The Institute of Informatics and Software Engineering fulfils the mission by the research activities relevant both in a national and international context and by extending, deepening and improving the offer of courses provided to students at all the three levels of university studies.

The Institute endeavours actively to cooperate. It includes interdisciplinary research and studies at other similar institutes, institutions and departments of its Faculty, its University, in Slovakia, in Europe and throughout the world. In particular, in 2007 the Institute was invited to join the international consortium of research institutions devoted to *Web Intelligence*. The Institute represents Slovakia in the consortium and contributes to promoting research in Web Intelligence worldwide. In 2009 the Institute has become partner of *European Network of Excellence on Aspect-Oriented Software Development, AOSD-Europe*, which integrates and coordinates research, education and dissemination activities of its members in the area of aspect oriented development of software. Originally, it has been a 7th Framework Programme project.

The Institute aims at becoming the leading Slovak institution in the areas of its competencies with ambitions to positively influence their development. The Institute is conscious of its high responsibility to the public and it provides expert services to it, thus improving life of the town, the region, the country and the mankind. The Institute looks for synergies with industry and enterprise community, and jointly tries to raise research and education quality in the areas of informatics and information technologies.

9.1 Staff

Director
>   Pavol Návrat, Professor

Deputy Director
>   Mária Bieliková, Professor
>   Viera Rozinajová, PhD.

Administrative Department
>   Zuzana Macková
>   Alexandra Zakalová

Teaching Staff
>   Nadežda Andrejčíková, PhD. (part time)
>   Pavel Bartoš
>   Mária Bieliková, Professor
>   Anna Bou Ezzeddine
>   Peter Brusilovsky, visiting Professor (part time)
>   Andrej Danko, PhD. (part time)
>   Iveta Dekýšová
>   Pavol Frič, PhD. (part time)
>   Marta Gnipová (part time)
>   Nikoleta Habudová
>   Daniela Chudá, PhD.
>   Ivan Kapustík
>   Gabriela Kosková, PhD.

Rastislav Královič, Assoc. Professor (part time)
Peter Lacko, PhD., from July 2010
Michal Laclavík, PhD. (part time)
Ján Lang, PhD.
Marián Mlynarovič, PhD. (part time)
Vladimír Mlynarovič, Assoc. Professor (part time)
Ľudovít Molnár, Professor
Pavol Návrat, Professor
Ivan Polášek, PhD.
Ivan Polický (part time)
Anna Považanová
Viera Rozinajová, PhD.
Tomáš Seidmann, PhD., visiting Assoc. Professor (part time)
Jiří Šafařík, Professor (part time)
Ľubor Šešera, PhD., visiting Assoc. Professor (part time)
Valéria Šimáková (part time)
Peter Tiňo, PhD., visiting Assoc. Professor (part time)
Valentino Vranić, PhD.
Michal Winczer, PhD. (part time)

Researchers
Marián Lekavý PhD. (part time)

External Lecturers
Ján Genči, PhD.
Eva Letovancová, Assoc. Professor
Martin Marko
Jozef Papula, Professor
Petr Šaloun, Assoc. Professor
Danica Šoltésová, PhD.
Marián Šuráb, Assoc. Professor

Full time PhD Students
Michal Barla
Peter Bartalos
Ladislav Borženský
Róbert Čapla
Michal Holub
Peter Kajsa
Michal Kasan
Ivan Kišac
Michal Kompan
Tomáš Kramár
Tomáš Kučečka
Tomáš Kuzár
Matej Košík
Ľubomír Majtás

Ján Máté
Jakub Mažgut
Pavol Mederly
Pavel Michlík
Ján Suchal
Roman Šelmeci
Jakub Šimko
Marián Šimko
Jozef Tvarožek
Michal Tvarožek
Peter Vojtek
Dušan Zeleník

9.2 Teaching

Undergraduate Study (Bc.)

Course	Semester	Credits	Lecturer
Artificial Intelligence	Spring	6	P. Návrat
Communication in Culture History	Spring	3	D. Šoltésová
Construction of Effective Algorithms	Spring	6	R. Královič
Data Structures and Algorithms	Autumn	6	P. Návrat
Entrepreneurship and Management	Autumn	5	J. Papula
Final Bachelor Project 0–II	Autumn Spring	3-3-9	P. Návrat
Functional and Logic Programming	Spring	6	M. Bieliková
Information and Communication Technologies Law	Spring	5	I. Dekýšová
Managerial Economics	Autumn	5	V. Mlynarovič
Object-Oriented Programming	Spring	6	V. Vranić
Program Development for Java Platform	Spring	6	M. Marko
Programming Languages and Compilation	Autumn	6	Ľ. Molnár
Principles of Information Systems	Autumn	5	V. Rozinajová
Principles of Software Engineering	Spring	7	M. Bieliková
Procedural Programming	Autumn	6	A. Bou Ezzeddine
Procedural Programming Seminar	Autumn	0	A. Považanová
Research Seminar I-IV	Autumn Spring	0-3-3-3	M. Bieliková
Software Systems Development	Spring	3	M. Bieliková
Specification Methods and Tools	Spring	5	V. Vranić
Social Connotations of Informatics and Information and Communication Technologies	Spring	3	M. Winczer

Course	Semester	Credits	Lecturer
Management of Social Systems	Spring	3	E. Letovancová
Theoretical Foundations of Informatics	Spring	6	D. Chudá
Web Publishing	Spring	6	P. Šaloun

Master Study (Ing.)

Course	Semester	Credits	Lecturer
Advanced Database Systems	Autumn	6	J. Genči
Architecture of Information Systems	Autumn	4	M. Mlynarovič
Architecture of Software Systems	Autumn	4	I. Polášek
Application Architectures of Software Systems	Spring	6	Ľ. Šešera
Aspect-Oriented Software Development	Autumn	6	V.Vranić
Design of Compilers	Autumn	6	Ľ. Molnár
Diploma Project I–III (Information Systems)	Autumn Spring	8-12-20	P. Návrat
Diploma Project I–III (Software Engineering)	Autumn Spring	8-12-20	M. Bieliková
Distributed Software Systems	Autumn	6	T. Seidmann
E-communication of Business and Administrative Processes	Spring	6	P. Frič
History of Design	Autumn	5	D. Šoltésová
Industry Project	Spring	5	I. Polášek
Information Search	Autumn	5	M. Laclavík
Knowledge Discovery	Autumn	6	G. Kosková
Knowledge-Based Systems	Autumn	5	I. Kapustík
Law – Selected Problems	Spring	5	I. Dekýšová
Management of Software and Information System Projects	Spring	6	M. Bieliková
Object-Oriented Analysis and Design	Autumn	6	I. Polášek
Quality of Program and Information Systems	Spring	6	D. Chudá
Research of Information Systems	Autumn	2	P. Návrat
Rhetoric	Autumn	5	M. Šuráb
Research of Software Systems	Autumn	2	M. Bieliková
Team Project I-II (Information Systems, Software Engineering)	Autumn Spring	7-5	M. Bieliková

9.3 Theses

Bachelor (Bc.) Theses – graduates 2010

Study Programme Informatics

- Aust, Peter: *Creating a Web Interface to Set Parameters of Web Services*.
  Supervisor: P. Bartalos

- Baková, Lenka: *Support Means for Verifying and Assessing the Knowledge*.
  Supervisor: V. Šimáková

- Baláž, Marcel: *QEMU as Plug-in for Web Browser*. Supervisor: M. Košík

- Balucha, Anton: *Support of Family and Social Relationships Retrieval*.
  Supervisor: M. Bieliková

- Baranec, Boris: *The Goalkeeper for 3D Simulated Robotic Football*.
  Supervisor: I. Kapustík

- Bednár, Maroš*: Learning System Using Multimedia Presentation of Information*.
  Supervisor: V. Rozinajová

- Belanji, Juraj: *Feature Model Representation*. Supervisor: V. Vranić

- Belica, Andrej: *Moodle Extension to Support Student Assignments*.
  Supervisor: D. Chudá

- Benčič, Anton: *Software Design in International Competition*.
  Supervisor: M. Bieliková

- Beno, Miroslav: *Support for Correct Bibliography Writing*.
  Supervisor: N. Andrejčíková

- Betina, Timotej: *Multimedia Learning System*. Supervisor: V. Rozinajová

- Briš, Marek: *Creating Presentations*. Supervisor: A. Považanová

- Bugáň, Peter: *Enhancing the Web Experience by Freely Available Metadata*.
  Supervisor: M. Barla

- Čorba, Miroslav: *Goal Description for Web Services Composition*.
  Supervisor: P. Bartalos

- Čorej, Tomáš: *Extend Features of Distributed File Systems*. Supervisor: J. Máté

- Dúcky, Michal: *Teachers Notes*. Supervisor: A. Považanová

- Dulačka, Michal: *Aspect-Oriented Change Realization Study*. Supervisor: V. Vranić

- Džačovský, Marcel: *Technology PDMark*. Supervisor: K. Doričová

- Florek, Tomáš: *References in Large Graphs*. Supervisor: J. Suchal

- Hašto, Branislav: *Semantically Extended Chat*. Supervisor: I. Kapustík

- Hlaváček, Filip: *Dynamic Graph Visualization*. Supervisor: P. Vojtek

- Hudek, Ján: *Collaborative Concept Map Creator Web Portal*.
  Supervisor: J. Tvarožek

- Chlpek, Ján: *The Influence of Text Pre-processing to Determine Similarity in Texts*.
  Supervisor: D. Chudá

- Immer, Michal: *Multimedia Presentation of Region.* Supervisor: V. Šimáková

- Ivanko, František: *Information System to Support Evaluation of Questionnaires on the Web.* Supervisor: J. Máté

- Jalcová, Zuzana: *Connecting People by Using Web*. Supervisor: P. Návrat

- Janovic, Ivan: *Portal for Conductors and Choir Singers*. Supervisor: N. Habudová

- Jurík, Peter: *The Optimization of Data Storage Capacity Usage in E-Mail Communication*. Supervisor: J. Máté

- Kadlečík, Ľudovít: *Feature Modelling Support*. Supervisor: V. Vranić

- Kanta, Marcel: *Simulated Robotic Football – Low Skills and Abilities of Players*. Supervisor: M. Lekavý

- Korenek, Peter: *Model Driven Service Composition*. Supervisor: P. Mederly

- Kosmeľ, Juraj: *Tool for Verifying and Evaluating Knowledge*. Supervisor: V. Šimáková

- Kováč, Roman: *Life is Not Only a Game*. Supervisor: J. Tvarožek

- Krajník, Peter: *The Impact of Biometric Characteristics to Model for User Identification*. Supervisor: D. Chudá

- Kumor, Andrej: *The Influence of Readability Index for Determining the Similarity in Texts*. Supervisor: D. Chudá

- Laslop, Milan: *Support of Software Creation in Actual Development Tools*. Supervisor: Ľ. Majtás

- Lendvay, András: *Simulated Robotic Soccer – Low-Level Player Skills*. Supervisor: M. Lekavý

- Lipka, Lukáš: *Application for an Internet Social Network*. Supervisor: T. Kuzár

- Lučanský, Milan: *Web Site Content Metadata Acquisition Using Tags*. Supervisor: M. Šimko

- Majchrák, Metod: *Information System for Evidence of Projects and Publications*. Supervisor: I. Budinská

- Malých, Martin: *Detection and Presentation of Modifications in Software Evolution*. Supervisor: I. Polášek

- Mészároš, Roman: *Software Design in International Competition*. Supervisor: M. Bieliková

- Mešťaník, Pavol: *Automated Planning*. Supervisor: M. Lekavý

- Molnár, Martin: *Runtime Code Instrumentation*. Supervisor: Ľ. Majtás

- Molnár, Matej: *Data Security in Information Systems*. Supervisor: J. Lang

- Nižňanský, Boris: *Matrix of Competences Module*. Supervisor: N. Habudová

- Novotný, Matúš: *The Usage of Language BPEL for Service Composition*. Supervisor: V. Rozinajová

- Pagáč, Adam: *Electronic Album of Pictures.* Supervisor: A. Považanová

- Pastýr, Milan: *Design and Implementation of the Method if Interconnection of Social Portals.* Supervisor: G. Frivolt

- Paššák, Martin: *Efficient Data Representation of Real Networks.* Supervisor: M. Nehéz

- Pazúriková, Jana: *Life Is Just a Game.* Supervisor: J. Tvarožek

- Petriľák, Peter: *Web Application for Professional Trainees.* Supervisor: A. Považanová

- Pleško, Ivan: *Multimedia Presentation of Region.* Supervisor: V. Šimáková

- Polák, Vladimír: *Website Optimization for Search Engines.* Supervisor: A. Bou Ezzeddine

- Práznovský, Martin: *Cliques in Random Graphs.* Supervisor: M. Nehéz

- Pribula, Eduard: *Simulated Robotic Soccer – Higher Capabilities of Agents.* Supervisor: M. Lekavý

- Prokop, Jaroslav: *Extension of Rescheduling Based on Minimal Graph Cut – Combination with Existing Solutions.* Supervisor: M. Lekavý

- Repka, Igor: *Web Application for Professional Practices.* Supervisor: A. Považanová

- Sivuľka, Ján: *Tool for Verification and Assessment of Knowledge.* Supervisor: V. Šimáková

- Skulský, Radovan: *Optimalization of Web Pages for Search Engines.* Supervisor: A. Bou Ezzeddine

- Slabej, Tomáš*: Web Application Supporting Effective Operation of Medical Ambulance.* Supervisor: V. Rozinajová

- Snopko, Samuel: *Using Models in Software Projects.* Supervisor: Ľ. Majtás

- Sobôtka, Marek: *Web Application to Support the Effective Operation of the Doctor Ambulance.* Supervisor: V. Rozinajová

- Sokol, Pavol: *Support for Web Services Composition by User Collaboration.* Supervisor: V. Rozinajová

- Sopko, Pavol: *Information System to Support Creation of Questionnaires on the Web.* Supervisor: J. Máté

- Srba, Ivan: *Tracing Strength of Relationships between Users in Social Portal.* Supervisor: M. Bieliková

- Šajgalík, Márius: *Software Design in International Competition.* Supervisor: M. Bieliková

- Šilhár, Dárius: *Interactive Web Photo Gallery.* Supervisor: M. Tvarožek

- Šimulčík, Miroslav: *Information System for Support of Web Surveys Creation.* Supervisor: J. Máté

- Škrabák, Michal: *Analyse of Open Source Tools for Testing Application.* Supervisor: S. Krutek

- Šoka, Milan: *Classification of the Binary Data.* Supervisor: J. Mažgut

- Švec, Marek: *Protection of Data in Information Systems*. Supervisor: I. Dekyšová

- Teplická, Viera: *System for Purchase and Registration of Equipment.* Supervisor: N. Habudová

- Topoľský, Ondrej: *Natural Language Processing*. Supervisor: I. Budinská

- Uherčík, Tomáš: *Information System to Support the Evaluation of Web Questionnaires.* Supervisor: J. Máté

- Uhlár, Marek: *Web Application to Support the Effective Operation of the Doctor Ambulance.* Supervisor: V. Rozinajová

- Unčík, Maroš: *Annotating Texts in Educational Web-Based System*. Supervisor: M. Bieliková

- Valaliková, Katarína: *Classification of Binary Data*. Supervisor: J. Mažgut

- Vasiľ, Miroslav: *Visualization of Flows and Changes in the Structure of Graph in Time*. Supervisor: J. Suchal

- Vatrt, Tomáš: *Development of Information Systems Based on Service Oriented Architecture.* Supervisor: V. Rozinajová

- Virdzek, Pavol: *Task Planner*. Supervisor: A. Považanová

- Zálešák, Vladislav: *Visualization of Changing Graphs*. Supervisor: P. Vojtek

- Zboroň, Lukáš: *Multiagent System for E-Learning and Tutoring.* Supervisor: I. Budinská

- Zemko, Zoltán: *Portal for Software Application Development Support*. Supervisor: I. Polášek

- Zuber, Martin: *Feature Modelling Support*. Supervisor: V. Vranić

Study Programme Computer Systems and Networks

- Panenka, Roman: *Design of System in International Competition*. Supervisor: M. Bieliková

Master Theses – graduates 2010

Study programme Information Systems

- Bakiča, Marián: *Support for Preservation of Cultural and Industrial Heritage*. Supervisor: I. Kapustík

- Biró, Ladislav: *Web Portal for Users with Common Interests Based on Trends in Web 2.0 And SOA*. Supervisor: N. Habudová

- Csóka, Peter: *Determining Semantic Distance between Documents*. Supervisor: T. Kuzár

- German, Július: *Information Extraction from Web Environment – Translation Search.* Supervisor: A. Bou Ezzeddine

- Humay, Pavol: *Similarity and Quality of Program Versions.* Supervisor: D. Chudá

- Jurík, Miroslav: *Expert Finding and Sharing System*. Supervisor: A. Považanová

- Kadora, Andrej: *Text Classification Based on Sentiment Analysis.* Supervisor: I. Budinská

- Kršák, Rastislav: *User Model Based on Keystroke Dynamics.* Supervisor: D. Chudá

- Lackovič, Pavol: *Analysis and Design of Security Patterns.* Supervisor: D. Chudá

- Ligocký, Juraj: *Service Oriented Architecture.* Supervisor: V. Rozinajová

- Macko, Martin: *Ontology-Based Semantic Similarity.* Supervisor: I. Kapustík

- Mako, Vladimír: *Portal for University Graduates with Support for Searching of Individuals.* Supervisor: N. Habudová

- Martinský, Ladislav: *Personalized Web Search Query Suggestion.* Supervisor: P. Návrat

- Marton, Karol*: Improving of Knowledge-Based Web Search.* Supervisor: P. Návrat

- Pán, Gabriel: *A Multifunctional Trainer for the Simulated Robotic Soccer.* Supervisor: M. Závodský

- Potančok, Ivan: *Getting Knowledge from Big Graphs.* Supervisor: P. Vojtek

- Rada, Peter: *Intelligent Managing of e-mail through Extraction of Information, the Web and Social Networks.* Supervisor: M. Laclavík

- Zagora, Martin*: System for Supporting Educational Process.* Supervisor: A. Považanová

- Zachar, Martin: *Recommendation Based on Multidimensional Data in Graph Structure Form.* Supervisor: J. Suchal

Study Programme Software Engineering

- Andruška, Igor: *Discovering Topics in Human Conversations.* Supervisor: I. Kapustík

- Bača, Pavol: *Replacing Object-Oriented Patterns with Intrinsic Aspect-Oriented Patterns.* Supervisor: V. Vranić

- Baran, Milan: *Test Environment for RoboCup.* Supervisor: M. Závodský

- Bartalos, Tomáš: *Framework for Mobile Multiagent Systems.* Supervisor: I. Kapustík

- Belluš, Juraj: *Player for Simulated Robotic Soccer.* Supervisor: I. Kapustík

- Bódi, Peter: *SOA Based Enterprise Application Integration.* Supervisor: V. Rozinajová

- Borženský, Ladislav: *MDA Transformation of Aspect-Oriented Design.* Supervisor: V. Vranić

- Cích, Peter: *Search Using Personal Profiles.* Supervisor: P. Návrat

- Coranič, Matúš: *Bee Hive Model Used at the Gathering and Categorization Information from the Web.* Supervisor: A. Bou Ezzeddine

- Čapla, Robert: *Information Search from Internet Using Hierarchical Bee Hive.* Supervisor: A. Bou Ezzeddine

- Daniš, Pavol: *Rules and Patterns in Refactoring*. Supervisor: I. Polášek

- Fridrich, Peter: *Managing Communications by Email*. Supervisor: M. Laclavík

- Gablovský, Marian: *Simulation of Users Using Multi-Agent System*. Supervisor: I. Kapustík

- Ganz, Viliam: *Stabilized Player for Simulated Robotic League*. Supervisor: I. Kapustík

- Grexa, Jozef: *The Semantic Interoperability of Memory and Funded Institutions*. Supervisor: N. Andrejčíková

- Hečko, Michal: *Service Oriented Architecture*. Supervisor: V. Rozinajová

- Hlaváč, Michal: *Simulated Robotic Soccer*. Supervisor: M. Lekavý

- Holub, Michal: *Adaptation of Website′s Navigation Based on Behavior of Users*. Supervisor: M. Bieliková

- Hric, Ján: *Options for Document Searching and Classification Using SOM Neural Networks*. Supervisor: I. Polášek

- Kollár, Juraj: *Patterns Application Support in Software Projects at the Source Code Level*. Supervisor: Ľ. Majtás

- Kompan, Michal: *Personalized Recommendation of Interesting Texts*. Supervisor: M. Bieliková

- Kožíšek, Jakub: *Pattern Recognition and Recovery*. Supervisor: R. Filkorn

- Kramár, Tomáš: *Supporting User Navigation Using Social Network Context*. Supervisor: M. Barla

- Kučečka, Tomáš: *Automated Planning*. Supervisor: M. Lekavý

- Kuliha, Branislav: *Realising Changes by Aspects at the Design Level*. Supervisor: V. Vranić

- Kutenicsová, Dana: *Semantic Annotation of Opinions in Text*. Supervisor: J. Tvarožek

- Labuda, Tomáš: *Merging Object Models with Patterns*. Supervisor: I. Polášek

- Lojka, Lukáš: *Incorporating Implicit User Feedback in Searching*. Supervisor: J. Suchal

- Michlík, Pavel: *Personalized Exercises Recommending for Limited Time Learning*. Supervisor: M. Bieliková

- Orgonáš, Jozef: *Sequence Classification Based on Content and Position Information*. Supervisor: J. Mažgut

- Putz, Jozef: *Web Application for Users with Same Interest*. Supervisor: N. Habudová

- Repáň, Viliam: *Mobile Terminal for IMS Networks*. Supervisor: R. Vargic

- Rodina, Dušan: *Retrieving Design Patterns and Anti-Patterns as Method for Improving Software Quality*. Supervisor: Ľ. Majtás

- Sirota, Martin: *Face Recognition Based on Binary Tensor Decomposition*. Supervisor: J. Mažgut

- Sirotová, Katarína: *Software Knowledge Catalogue with Variability Modelling*. Supervisor: R. Filkorn

- Smolinský, Peter: *Automatic Semantic Annotation of Named Entities*. Supervisor: T. Kuzár

- Šelmeci, Roman: *Knowledge Base of Software Patterns Realized in Integration Tools*. Supervisor: P. Mederly

- Ševce, Ondrej: *Content Recommendation Based on Semantic Analysis of Text*. Supervisor: J. Tvarožek

- Šimko, Jakub*: Enhancing Search Using Graphs and User Model*. Supervisor: M. Tvarožek

- Tomek, Jozef: *Identification of Virtual Communities for Adaptive Web Systems*. Supervisor: M. Barla

- Valašík, Martin: *Modelling Users for Adaptive Web System with Social Relationships*. Supervisor: M. Barla

- Vanderka, Peter: *Intelligent Knowledge Management System*. Supervisor: I. Polášek

- Vanek, Filip: *Refactoring of Object Structures*. Supervisor: I. Polášek

- Zahoranský, Dušan: *Phonetic Person Searching*. Supervisor: I. Polášek

- Zeleník, Dušan: *Recommending Based on Similarity Relations*. Supervisor: M. Bieliková

Doctoral (PhD.) Theses

Student name:	Miroslav Líška
Degree program:	Program and Information Systems
Thesis title:	*Extending and Utilizing the Software and Systems Process Engineering Metamodel with Ontology*
Supervisor:	Pavol Návrat, Professor
Defended on:	September 9, 2010
Annotation:	Model Driven Architecture (MDA) provides a set of metamodel standards as MOF, UML, BPMN, SPEM and others. A metamodel makes statements about what can be expressed in the valid models of a certain modelling language. Unfortunately, the mentioned metamodels have semiformal architecture, thus it is not possible to make and to verify created language statements with formal techniques such as the consistency or satisfiability verification. However, recently the combination of MDA and the Semantic Web becomes the leading subject in this direction. Nevertheless, the works mostly focus only on the UML-OWL relationships, since the possibilities of these languages are very similar. In this thesis, we focus on SPEM that is used to define software and systems development processes and their components. We present creation of the SPEM Ontology which is used in three utilizations that are: SPEM models validation with ontology, a project plan verification with ontology and ontology based approach to software project enactment with a supplier.

Student name:	Peter Vojtek
Degree program	Software engineering
Thesis title:	*Contribution to relational classification with homophily assumption*
Supervisor:	Mária Bieliková, Professor
Defended on:	May 21, 2010
Annotation:	This work is focused on relational classification, an emerging paradigm of data mining based on attribute-based classification. Relational classification is a set of methods which employ relations between instances in a dataset as well as their attributes. Due to this feature relational methods provide higher quality of classification in networked datasets. Homophily is a phenomenon present in graphs capturing real-world data, e.g. social connections between humans. Homophily is defined as following: related vertices are more likely to share similarities as nonrelated instances. Impact of homophily assumption on particular branches of relational classifiers is analyzed and then homophily measures are defined. Two new relational methods are designed. First classifier belongs to simple relational methods and employs local graph ranking in order to redefine neighbourhood function, the second method belongs to collective inference branch of methods and applies information interchange moderation between the classified vertices. Both methods are capable to increase the quality of class assignment in networked data due to their capability to employ and measure homophily in a graph.

9.4 Research Laboratories

Intelligent Systems Laboratory

Manager:	P. Návrat
Contact:	`pavol.navrat@stuba.sk`
Description:	The laboratory is used for research of a wide spectrum of problems that fall into the field of program and information systems mainly in the scope of artificial intelligence. The projects solved are concerned with the methods of knowledge system development with a special focus on multi-agent systems and their collaboration, as well as intelligent search, delivery, and presentation of heterogeneous information in a distributed environment such as Internet, including categorisation and recommendation of the information. The laboratory is equipped with fairly powerful computer systems and advanced software tools that correspond to the demands of the projects being solved. The equipment is regularly renewed thanks mainly to continuous success in grants including international ones.

Advanced Software and Web Technologies Laboratory

Manager:	M. Bieliková
Contact:	`maria.bielikova@stuba.sk`
Description:	The laboratory is used for research of a wide spectrum of problems that fall into the field of program and information systems mainly in the scope of software engineering. The projects being solved were concerned with the methods and tools of software system develop-

ment with a special focus on the structure design of component-based and structure and presentation design of hypermedia systems. The laboratory is used also for research projects in the field of advanced software technologies for master degree students. The laboratory is equipped with fairly powerful computer systems and advanced CASE tools. The equipment is regularly renewed thanks mainly to continuous success in grants including international ones.

9.5 Research Projects

Adaptive Social Web and its Services for Information Accessing and Search (VEGA, 1/0508/09)

Project leader:	P. Návrat
Members UISI:	M. Bieliková, A. Bou Ezzeddine, D. Chudá, I. Kapustík, J. Lang, I. Polášek, V. Rozinajová, V. Vranić, M. Barla, P. Bartalos, P. Kajsa, M. Kasan, T. Kuzár, Ľ. Majtás, P. Mederly, J. Suchal, M. Šimko, P. Vojtek, J. Tvarožek, M. Tvarožek
Supported by:	Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences
Duration:	January 2009 – December 2010
Description:	Web is evolving, changing, which itself requires a need of its further exploration. It becomes a place to mutual communication of people, what can be used to design of new methods of searching, classification or presentation information from web. Besides new methods will take more and more into account the context, in which the retrieval is realized. Project is focused on research of methods of information retrieval and way if its usage/utilization. In this framework, the concept of semantic web service will be elaborated. Important part of research of automated data collecting about user activities and user groups collaboration on web with the aim to offer better information services. We shall seek new approaches to develop software tools for support of adaptive social web paradigm and its services including post-object paradigms, model-driven development (MDD), web design patterns, which can allow more effective implementation of software information systems acting in web environment.

European Thematic Network for Teaching, Research and Innovations in Computing Education (ETN-142399-LLP-1-2008-1-BG-ERASMUS-ENW)

Project leader:	P. Návrat for STU
Contractor:	Angel Sotirov Smrikarov, Angel Kanchev University of Ruse, Bulgaria
Supported by:	Lifelong Learning Program
Duration:	October 2008 – September 2011
Description:	The project has several innovative aspects. One of them is the fact that it suggests reorganising the teaching process, through the use of modern technologies such as e-Learning, m-Learning, and development of new updated educational programs which will lead to higher quality education. Another innovative aspect is the fact that the education in Computing opens to science and business on one hand and on the

other hand they open to it. Teaching, research and innovations are treated as inseparable components in Computing education and training. The project will contribute to the integration of the European Higher Education Area and that of the European Research and Innovation Area in the field of Computing education.

Support of Building a Center of Exellence for Smart Technologies, Systems, and Services (ITMS 26240120005)

Project leader:	M. Bieliková for FIIT STU
Members UISI:	P. Návrat
Supported by:	European Structural Fund
Duration:	May 2009 – April 2011
Description:	The project aims at following: concentration of the top research-educational teams of smart technologies, systems, and services in Bratislava region; improving the quality of technological infrastructure and smart technology development of systems and services including the information and communication infrastructure modernization; improving effectiveness of the know-how transfer between academy and industry sphere in the area of smart technologies, systems, and services; improving integration into international cooperation in research and development in the field of smart technologies.

Support of Building a Center of Excellence for Smart Technologies, Systems, and Services II (ITMS 26240120029)

Project leader:	M. Bieliková for FIIT STU
Members UISI:	P. Návrat
Supported by:	European Structural Fund
Duration:	January 2010 – January 2013
Description:	The objective is to improve, build further, and put into operation the technological infrastructure that would enable to sustain the center of excellence of research and development for enterprise information source processing and presentation with the application of advanced distributed architectures for parallel processing of extensive sources of semistructured data and high performance computing for complex applications.

Social Intelligent Recommendation for Learning (KEGA, 028-025STU-4/2010

Project leader:	M. Bieliková
Members UISI:	M. Barla, A. Bou Ezzeddine, D. Chudá, T. Kramár, J. Lang, P. Michlík, P. Návrat, I. Polášek, A. Považanová, V. Rozinajová, V. Vranić, J. Suchal, M. Šimko, J. Tvarožek, M. Tvarožek
Supported by:	Cultural and Educational Grand Agency of the Ministry of Education of Slovak Republic
Duration:	January 2010 – December 2011
Description:	The project aims to develop novel methods and techniques for learning based on social relationships and intelligent recommendation within a learning environment. The relationships representing student interests explicitly as well as the implicit relationships emerging from

a learning process will be utilized. The latter ones allow for a dynamic group formation for effective task solving, learning materials enrichment by means of collaboration and social annotation and/or intelligent recommendation of learning objects based on social relations and folksonomies together with an effective navigation through an educational course. The outcome of the project is an evaluation of proposed methods in domain of learning programming based on emerging Web 2.0 and Semantic Web technologies. Besides the methods, the learning materials for programming learning are created, which can be reused in different learning environments by other universities.

Support of Plagiarism Prevention in E-Learning of Informatics (KEGA-345-032STU-4/2010)

Project leader:	D. Chudá
Members UISI:	M. Bieliková, I. Dekýšová, A. B. Ezzeddine, D. Chudá, I. Kapustík, T. Kuzár, J. Lang, P. Návrat, I. Polášek, B. Steinmüller, J. Suchal, M. Šimko
Supported by:	Cultural and Educational Grand Agency of the Ministry of Education of Slovak Republic
Duration:	January 2010 – December 2011
Description:	Plagiarism is a growing threat, especially at universities where it can be a highly demotivating factor both for teachers and students. Therefore, there are efforts to detect plagiarism and to reduce its occurrence. Plagiarism is a common problem that appears in various areas of our lives. Often, we learn about stolen ideas and disputes about them may even end up in court. The project aims to design new concepts, methods, and techniques for solving the complex problem of the process of collection and monitoring student assignments and detecting them to avoid plagiarism.

9.6 Publications

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BIELIKOVÁ, M.: Student Research Conference 2010. Vol. 1, Vol. 2. 6th Student Research Conference in Informatics and Information Technologies Bratislava, 2010, Proceedings. Slovak University of Technology in Bratislava, 554 p. ISBN 978-80-227-3266-6, ISBN 978-80-227-3267-3

BIELIKOVÁ, M. – NÁVRAT, P.: Workshop on the Web - Science, Technologies and Engineering, 7th Spring 2010 PeWe Ontožúr, Smolenice Castle, Slovakia, 2010 Proceedings. Slovak University of Technology in Bratislava, 77 p. ISBN 978-80-227-3274-1

KVASNIČKA, V. – POSPÍCHAL, J. – NÁVRAT, P. – LACKO, P. – TREBATICKÝ, P.: Artificial Intelligence and Cognitive Science II, Slovak University of Technology in Bratislava, 2010, 260 p. ISBN 978-80-227-3284-0 (in Slovak)

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9.7 Cooperation

Cooperation in Slovakia

– Institute of Informatics, Slovak Academy of Sciences, Bratislava
– Institute of Informatics, Faculty of Science, Pavol Jozef Šafárik University in Košice
– Faculty of Electrical Engineering and Information Technologies Technical University of Košice
– Faculty of Management Science and Informatics, University of Žilina
– Ditec Ltd.
– Datalan Ltd.
– Gratex International Ltd.
– GBSW Ltd.
– Hewlett-Packard Slovakia Ltd.
– IBM Slovakia Ltd.
– Microsoft Slovakia Ltd.
– Oracle Slovakia Ltd.
– PosAm Ltd.
– Siemens Ltd.
– Softec Ltd.
– Soitron Ltd.
– Slovak Telecom
– Tempest Ltd.
– Unicorn Ltd.

International Cooperation

–   MIR Labs, Machine Intelligence Research Labs, global not-for-profit academic consortium oriented to innovation and research in various areas of machine intelligence. The Institute is part of the MIR Labs Network with Pavol Návrat serving as coordinator for Slovakia.

–   WIC, Web Intelligence Consortium, an international not-for-profit organisation devoted to scientific research and industry development in the area of web intelligence. The Institute plays a role of Slovak Research Centre of the Consortium.

–   AOSD-Europe, integrates and coordinates research, education and dissemination activities of its members in the area of aspect oriented development of software. Originally, it has been a 7. Framework Programme project.

–   School of Information Sciences, University of Pittsburgh, Pittsburgh, USA

–   Department of Computers, Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Republic

–   Institute of Information Systems, Faculty of Information Technologies, Brno University of Technology, Czech Republic

–   Institute of Intelligent Systems, Faculty of Information Technologies, Brno University of Technology, Czech Republic

–   Department of Computers, Faculty of Applied Science, University of West Bohemia in Pilsen, Czech Republic

–   Department of Computer Science, Faculty of Electrical Engineering and Computer Science, Technical University of Ostrava, Czech Republic

–   Faculty of Informatics, Masaryk University, Brno, Czech Republic

–   Department of Software Engineering, Faculty of Mathematics and Physics, Charles University in Prague, Czech Republic

–   UNESCO–Division of Information and Informatics, Paris, France

–   University of Maribor, Slovenia

–   Division of Computer Science, National Technical University of Athens, Greece

–   Department of Information and Communication Systems Engineering, University of the Aegean, Greece

–   University of Hannover, L3S Research Center, Hannover, Germany

–   Institute of Computer Science, Faculty of Philosophy and Natural Sciences, Silesian University in Opava, Czech Republic

–   Lancaster University, United Kingdom

–   Faculty of Electrical and Electronic Engineering and Automation, University of Rousse, Bulgaria

Visits of Staff Members

–   *M. Bieliková, M. Jačala, P. Kajsa, J. Tvarožek, P. Vojtek:* SOFSEM 2010, Špindlerův Mlýn, Czech Republic, January 23-29, 2010

- *P. Bartalos, J. Suchal, J. Tvarožek:* Znalosti 2010, Jindřichův Hradec, Czech Republic, February 3-5, 2010

- *D. Chudá:* World Conference on Educational Sciences, Istanbul, *Turkey*, February 3-9, 2010

- *M. Bieliková:* Datakon steering committee meeting, Mikulov, Czech Republic, February 17-18, 2010

- *Ľ. Molnár:* Czech Technical University, Prague, Czech Republic, February 16, 2010

- *P. Návrat:* University of West Bohemia, Pilsen, Czech Republic, March 21-22, 2010

- *M. Bieliková:* WWW 2010, Raleigh, North Carolina, USA, April 24 – May 2, 2010

- *V. Vranić:* AOSD 2010, International Conference on Aspect-Oriented Software Development, Rennes and Saint Malo, France, March 14-19, 2010

- *V. Vranić:* Faculty of Information Technology, Brno University of Technology, Czech Republic, March 12, 2010

- *Ľ. Molnár:* UNESCO, 184th session of the Executive Board, Paris, France, March 30 – April 8, 2010

- *M. Bieliková, P. Návrat:* Faculty of Information Technology, Brno University of Technology, Brno, Czech Republic, May 19, 2010

- *Ľ. Molnár:* University of West Bohemia, Pilsen, Czech Republic, May 26, 2010

- *P. Návrat:* CEEN General Assembly and Workshop, Sofia, Bulgaria, May 27-30, 2010

- *Ľ. Molnár:* Director-General´s Consultation of National Commissions for UNESCO, London, UK, June 5-8, 2010

- *P. Návrat, D. Chudá:* CompSysTech 2010 + ETN-TRICE meeting, Sofia, Bulgaria, June 16-19, 2010

- *T. Kramár, M. Šimko:* UMAP 2010, User Modeling, Adaptation and Personalization, Waikoloa Village, Hawaii, USA, June 19 – June 28, 2010

- *M. Bieliková:* UMAP 2010, User Modeling, Adaptation and Personalization, Waikoloa Village, Hawaii, USA, June 19-25, 2010

- *P. Návrat, V. Rozinajová, D. Chudá:* Faculty of Information Technology, Brno University of Technology, Czech Republic, June 23, 2010

- *M. Bieliková:* 2010 ACM Awards Banquet, San Francisco, California, USA, June 25-29, 2010

- *M. Tvarožek:* 2010 ACM Awards Banquet, San Francisco, California, USA, June 22-29, 2010

- *J. Tvarožek:* ITS 2010, Intelligent Tutoring Systems 2010, Pittsburgh, USA, June 13-21, 2010

- *M. Bieliková, M. Barla, A. Benčič, R. Panenka, R. Meszaros, M. Šajgalík:* Imagine Cup Finals, Warsaw, Poland, July 2-9, 2010

- *P. Bartalos:* ICWS 2010, International Conference on Web Services, Miami, Florida, USA, July 4-11, 2010

- *M. Tvarožek:* ICWE 2010, International Conference on Web Engineering, Vienna, Austria, July 7-9, 2010
- *M. Bieliková:* Czech Technical University, Prague, Czech Republic, August 16, 2010
- *P. Bartalos:* ISD 2010, Information Systems Development, Prague, Czech Republic, August 24-27, 2010
- *M. Bieliková, T. Kuzár, I. Srba, M. Tvarožek:* Web Intelligence 2010, Toronto, Canada, August 30 – September 4, 2010
- *D. Chudá:* E-Learning and the Knowledge Society 2010 + ETN TRICE meeting, Riga, Latvia, August 25-29, 2010
- *M. Kompan, J. Šimko:* DEXA 2010, Database and Expert System Applications, Bilbao, Spain, August 28 – September 5, 2010
- *M. Šimko:* Summer School *"Reasoning Web 2010"* , Dresden, Germany, August 29 – September 4, 2010
- *Ľ. Molnár:* Institut Superieur D´Electronique de Paris, Erasmus mobility, Paris, France, September 1-3, 2010
- *O. Ševce:* AIMSA 2010, Varna. Bulgaria, September 7-12, 2010
- *M. Bieliková:* Faculty of Information Technology, Brno University of Technology, Czech Republik, September 9, 2010
- *I. Polášek:* SISY 2010, IEEE International Symposium on Intelligent Systems and Informatics, Subotica, Serbia, September 9-11, 2010
- *A. Bou Ezzeddine, M. Barla, M. Tvarožek, M. Šimko:* World Computer Congress 2010, Brisbane, Australia, September 11-26, 2010
- *J. Mažgut:* ICANN 2010, International Conference on Artificial Neural Networks, Thessaloniki, Greece, September 14-19, 2010
- *P. Návrat, P. Mederly:* ADBIS 2010, Novi Sad, Serbia, September 20-24, 2010
- *P. Bartalos:* WoSS 2010, Timisoara, Romania, September 22-25, 2010
- *M. Holub, P. Michlík, D. Zeleník:* ACM Conference on Recommender Systems, Barcelona, Spain, September 24 – October 2, 2010
- *J. Tvarožek:* EC-TEL 2010, Barcelona, Spain, September 28 – October 2, 2010
- *Ľ. Molnár:* UNESCO, 18th session of the Executive Board, Paris, France, October 5-8, 2010
- *M. Barla:* WWW/Internet 2010, Timisoara, Romania, October 13-18, 2010
- *M. Bieliková, D. Chudá, P. Mederly, J. Šimko:* Datakon 2010, Mikulov, Czech Republic, October 16-19, 2010
- *Ľ. Molnár:* UNESCO, 18th session of the Executive Board, Paris, France, October 18-21, 2010
- *Ľ. Molnár:* Tomas Bata University, Zlín, Czech Republic, October 22, 2010
- *M. Bieliková, M. Tvarožek, J. Šimko, M. Unčík:* ACM SPY 2010, Prague, Czech Republic, November 4-6, 2010
- *M. Bieiková, P. Návrat:* Faculty of Information Technology, Brno University of Technology, Czech Republic, November 11, 2010

- *J. Tvarožek, M. Labaj, M. Lohnický, O. Proksa, K. Rastočný, M. Šajgalík,
  D. Švoňava*: CERC´10, International Collegiate Programming Contest, Wroclaw,
  Poland, November 19-22, 2010
- *M. Bieliková:* SMAP 2010, International Workshop on Semantic Media Adaptation
  and Personalization, Limassol, Cyprus, December 8-12, 2010

Visits to the institute

- Bebo White, SLAC National Accelerator Laboratory, April 16-22, 2010

9.8 Membership in Professional Organisations and Societies

Slovak Professional Organisations and Societies

Michal Barla

- Slovak Society for Computer Science (member, since 2007)

Peter Bartalos

- Slovak Society for Computer Science (member, since 2007)
- Slovakia Chapter of the Association for Computing Machinery
  (member, since 2010)

Pavel Bartoš

- Slovak Society for Computer Science (member, since 1992)

Mária Bieliková

- Slovakia Chapter of the Association for Computing Machinery
  (member, since 2009)
- Slovak Artificial Intelligence Association (member, since 2000)
- Slovak Centre of the IET (member, since 1998)
- Slovak Society for Computer Science (member, since 1998;
  member of the executive committee, since 2000)

Daniela Chudá

- Slovakia Chapter of the Association for Computing Machinery
  (member, since 2009)

Matej Košík

- Slovak Society for Computer Science (member, since 2007)

Marián Lekavý

- Slovak Society for Computer Science (member, since 2007)

Ľudovít Molnár

- Working Group of the Accreditation Commission of Slovakia for Information Sci-
  ences and Technologies (member, since 2003)
- Slovak Commission for UNESCO (member since 1993, chair, since 1996)
- Slovak Society for Computer Science (member, since 1992)
- Technical Standardization Committee (member, since 1992)

Pavol Návrat
- Slovakia Chapter of the Association for Computing Machinery (member, since 2009)
- Working Group of the Accreditation Commission of Slovakia for Information Sciences and Technologies (member, since 1999)
- Informatics Working Group of the Accreditation Commission of Slovakia (member, since 1999, chair of the executive council since 2009)
- Slovak Artificial Intelligence Association (since 2000), member of the executive committee and vice chairman (since 2000)
- Slovak Association of Mathematicians and Physicists (member, since 1982)
- Slovak Centre of the IET (member, since 1996; chair, since 1997)
- Slovak Society for Computer Science (member, since 1992)

Ivan Polášek
- Gratex IT Institute (supervisory board member, since 2008)

Viera Rozinajová
- Slovakia Chapter of the Association for Computing Machinery (member, since 2009)

Ján Suchal
- Slovak Society for Computer Science (member, since 2007)

Marián Šimko
- Slovakia Chapter of the Association for Computing Machinery (member, since 2009)

Michal Tvarožek
- Slovakia Chapter of the Association for Computing Machinery (member, since 2009)
- Slovak Society for Computer Science (member, since 2007)

Peter Vojtek
- Slovak Society for Computer Science (member, since 2007)

Valentino Vranić
- Slovak Society for Computer Science (member, since 2001)
- AOSD-Europe, European Network of Excellence on Aspect-Oriented Software Development (contact person at STU, since 2009)

International Professional Organisations and Societies

Peter Bartalos
- ACM, Association for Computing Machinery (member, since 2010)
- IEEE Computer Society (member, since 2009)

Pavel Bartoš
- IEEE Computer Society (member, 2003–2005)

Mária Bieliková

– IEEE, Institute of Electrical and Electronic Engineers (member, since 1998; senior member since 2003)
– IEEE Computer Society (member, since 1997)
– IET, Institution of Engineering and Technology (member, since 1998)
– ECUK, Engineering Council UK (registered Chartered Engineer, since 1998)
– ACM, Association for Computing Machinery (member, since 1998; senior member since 2009)
– IFIP, International Federation for Data Processing (member of Technical Committee TC2 – Software: Theory and Practice, since 2008)
– ISWE, International Society for Web Engineering (member, since 2007)
– CaSTB, Czech and Slovak Testing Board, a member of ISTQB, International Software Testing Qualifications Board (member, since 2006)
– SOFSEM – Annual Conference on Current Trends in Theory and Practice of Informatics Series, standing Steering Committee (member, since 2002)
– Datakon – Annual Conference on the Current Trends in Databases and Information Systems Series, standing Steering Committee (member, since 2003)
– CEE-SET – Central and East European Conference on Software Engineering Techniques Series, standing Steering Committee (member, since 2007)

Michal Holub

– ACM, Association for Computing Machinery (member, since 2010)

Daniela Chudá

– ACM, Association for Computing Machinery (member, since 2009)

Peter Lacko

– IEEE, Institute of Electrical and Electronic Engineers (member, since 2008)
– IEEE Computer Intelligence Society (member, since 2008)

Pavol Návrat

– CEE Network, Central and Eastern European Network for Quality Assurance in Higher Education (chair, since 2006)
– AAAI, Association for the Advancement of Artificial Intelligence (member, since 1993)
– AACE, Association for Advancement of Computers in Education (member, since 1998)
– IEEE, Institute of Electrical and Electronic Engineers (member, since 1996; senior member, since 1998)
– IEEE Computer Society (member, since 1996)
– ACM, Association for Computing Machinery (member, since 1998; senior member since 2009)
– IFIP, International Federation for Data Processing (member of Technical Committee TC12 – Artificial Intelligence, since 1998)

- IET, Institution of Engineering and Technology (member, since 1998; fellow, since 1998)
- ECUK, Engineering Council UK (registered Chartered Engineer, since 1998)
- JCKBSE, Joint Conference on Knowledge-Based Software Engineering Series, standing Steering Committee (member, since 1998)
- ADBIS, Advances in Databases and Information Systems Conference Series, standing Steering Committee (member, since 1998)
- Znalosti Conference Series, standing Steering Committee (member, since 2006)

Ľudovít Molnár
- IEEE, Institute of Electrical and Electronic Engineers (member, since 1991)
- ACM, Association for Computing Machinery (member, since 1991)
- UNESCO (Slovak Commission: member of bureau –1993-96, chair – since 1996, Informatics section – chair since1993. HQ Paris: IIP – member of bureau –1996-98, chair – 1998-2001, IFAP – member of bureau – since 2001. Executive Board – member – since 2001)
- ICETA, member of honorary committee

Viera Rozinajová
- ACM, Association for Computing Machinery (member, since 2009)

Marián Šimko
- ACM, Association for Computing Machinery (member, since 2009)

Michal Tvarožek
- ACM, Association for Computing Machinery (member, since 2009)

9.9 Other Activities

- ACM International Collegiate Programming Contest 2010 – Slovak University of Technology Contest – N. Habudová: event organiser
  `http://www.fiit.stuba.sk/acm/`
- ACM SPY 2010 – Czech ACM Chapter & Slovak ACM Chapter Student Project of the Year competition, M. Bieliková: chair of reviewers board, P. Návrat: member of reviewers board
  `http://www.acm-spy.sk, http://www.acm-spy.cz`
- ACM SPY 2010 – 3rd place in diploma theses category (M. Tvarožek: supervisor), 2nd place in bachelor theses category (M. Bieliková: supervisor)
- ACM Student Research Competition Grand Finals 2010, San Francisco, USA – M. Tvarožek 2nd place with project "Personalized Semantic Web Exploration Based on Adaptive Faceted Browsing" (M. Bieliková: second author)
- Diploma thesis of the year 2010 – Czech and Slovak Competition – 1st place (supervisor M. Bieliková), 2nd place (M. Barla: supervisor)
- RoboCup at FIIT 2010, Soccer Simulation League, Regional Tournament in Bratislava – I. Kapustík and M. Lekavý: event organisers
  `http://www.fiit.stuba.sk/robocup/`

- Imagine Cup 2010 – 1st place in the Slovak student team contest (M. Barla: supervisor)

- Imagine Cup 2010 – participation in the World Finals, Warsaw, Poland (M. Barla, supervisor, M. Bieliková – judge for Software Design category)

- IIT.SRC 2010 – Informatics and Information Technologies Student Research Conference, M. Bieliková: programme committee chair, D. Chudá, M. Lekavý, Ľ. Molnár, P. Návrat, I. Polášek, V. Rozinajová, V. Vranić: members of programme committee
  `http://www.fiit.stuba.sk/iit-src/`

- TP Cup 2010 student competition – M. Bieliková: event organiser
  `http://www.fiit.stuba.sk/tp-cup/`

- TP Cup 2010 student competition – 1st place (M. Tvarožek: supervisor)

- ProFIIT 2010 – secondary school programming competition – I. Dekýšová: event organiser, `http://www.fiit.stuba.sk/profiit`

- FIITApixel – photography competition – J. Lang: competition director, `http://foto.fiit.stuba.sk`

- GraFIIT Foundation – book edition support – I. Polášek, P. Návrat: organisers

- Computing and Informatics (CAI) – P. Návrat: associate editor and member of the editorial board

- International Journal of Intelligent Information and Database Systems – M. Bieliková: member of the editorial board

- Journal of Web Engineering – M. Bieliková: member of the editorial board

- Information Sciences and Technologies Bulletin of the ACM Slovakia – P. Návrat: Editor-in-Chief, M. Bieliková: Associate Editor-in-Chief

- VEGA, Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences – M. Bieliková: member of technical committee

- Personalized Web (PeWe) Group seminar organization – M. Bieliková: group coordinator; `http://www.fiit.stuba.sk/research/pewe/`

- (Co)-organizing workshop WIKT 2010

- (Co)-organizing annual conference Znalosti 2010

- 6th International Conference "E-learning and the Knowledge Society", August 25-27, 2010, Riga, Latvia – D. Chudá: member of programme committee

- ABIS 2010 – 18th Intl. Workshop on Personalization and Recommendation on the Web and Beyond, October 4-6, 2010, Kassel, Germany – M. Bieliková: member of programme committee

- ACIIDS 2010 – 2nd Asian Conference on Intelligent Information and Database Systems, Dong Hoi City, Quang Binh Province, Vietnam, March 24-26, 2010 – M. Bieliková: member of programme committee

- ADBIS 2010 – 14th East-European Conference on Advances in Databases and Information Systems, September 20-24, 2010, Novi Sad, Serbia, – M. Bieliková,

P. Návrat: members of programme committee, P. Návrat: member of steering committee

- AIMSA 2010 – 14th International Conference on Artificial Intelligence: Methodology, Systems, Applications, September 8-10, 2010, Varna, Bulgaria – M. Bieliková: member of programme committee

- ASEA 2010 – International Conference on Advanced Software Engineering & Its Applications, November 11-13, 2010, Cebu, Philippines – M. Bieliková: member of programme committee

- CEE-SECR 2010 – 6th Central and Eastern European Software Engineering Conference in Russia, October 11-15, 2010, Moscow, Russia – M. Bieliková: member of programme committee

- CompSysTech 2010 – International Conference on Computer Systems and Technologies 2010, June 17-18, 2009, Sofia, Bulgaria – P. Návrat: member of programme committee

- CSE 2010 – International Scientific Conference on Computer Science and Engineering, September 20-22, 2010, Stará Ľubovňa, Slovak Republic – M. Bieliková: member of programme committee

- Datakon 2010 – Annual Conference on the Current Trends in Databases and Information Systems, October 16-19, 2010, Mikulov, Czech Republic – M. Bieliková: member of steering committee, member of programme committee

- EJC 2010 – 20th European Japanese Conference on Information Modelling and Knowledge Bases, May 31-June 4, 2010, Jyväskylä, Finland – M. Bieliková: member of programme committee

- ENASE 2010 – 5th International Working Conference of Evaluation on Novel Approaches to Software Engineering, July 22-24, 2010, Athens, Greece, M. Bieliková: member of programme committee

- GCCP 2010 – 6th International Workshop on Grid Computing for Complex Problems, November 8-10, 2010, Bratislava, Slovakia – Ľ. Molnár: member of programme committee

- HT 2010 – 21st ACM Conference on Hypertext and Hypermedia, , June 13-16, 2010, Toronto, Canada – M. Bieliková: member of programme committee

- ICDEM 2010 – International Conference on Data Engineering and Management, Bishop Heber College, July 29-30, 2010, Tiruchirappalli, India – M. Bieliková: member of programme committee

- ICETA 2010 – 8th International Conference on Emerging E-Learning Technologies and Applications, October 27-29, 2010, Stará Lesná, High Tatras, Slovakia Republic – P. Návrat, Ľ. Molnár: members of honorary committee, M. Bieliková: member of programme committee

- ICWE 2010 – International Conference on Web Engineering, July 5-9, 2010, Vienna, Austria – M. Bieliková: member of programme committee

- ITAT 2010 – Conference on Information Intelligent Technologies – Applications and Theory. September 21-25, 2010, Smrekovica, Slovak Republic – M. Bieliková, D. Chudá: member of programme committee

- ITS 2010 – 10th International Conference on Intelligent Tutoring Systems, Pittsburgh, June 14-18, 2010, Pennsylvania, USA – M. Bieliková: member of programme committee

- KES AMSTA 2010 – 4th International KES Symposium on Agent and Multi-Agent Systems – Technologies and Applications, June 23-25, 2010, Gdynia, Poland – M. Bieliková: member of programme committee

- MCCIS-ISA 2010 – IADIS International Conference, Intelligent Systems and Agents 2009 Conference, July 29-31, 2010, Freiburg, Germany, M. Bieliková: member of programme committee

- NWESP 2010 – 5th International Conference on Next Generation Web Services Practices, November 19-21, 2010, Goa, India – M. Bieliková, V. Rozinajová: member of programme committee

- S3T 2010 – International Conference on Software Service Semantic Technologies, Varna, Bulgaria, September 11-12, 2010 – M. Bieliková: member of programme committee

- SAMI 2010 – 7th International Symposium on Applied Machine Intelligence and Informatics, January 28-30, Herľany, Slovak Republic, – Ľ. Molnár, M. Bieliková: member of programme committee

- SERA 2010 – International Conference on Software Engineering Research, Management and Applications, May 24-26, 2010, Montreal, Canada, M. Bieliková: member of programme committee

- SMAP 2010 – 5th International Workshop on Semantic Media Adaptation and Personalization, December 9-10, 2010, Limassol, Cyprus – M. Bieliková: member of programme committee

- SOFSEM 2010 – International Conference on Current Trends in Theory and Practice of Informatics, January 23-29, 2010, Špindlerův Mlýn, Czech Republic – M. Bieliková: chair of Student Research Forum

- UMAP 2010 – 18th International Conference on User Modelling, Adaptation and Personalization, June 20-24, 2010, Big Island of Hawaii , (Springer LNCS Series) – M. Bieliková: member of programme committee

- WIKT 2010 – 5th Workshop on Intelligent and Knowledge oriented Technologies, November 11-12, Bratislava, Slovak Republic – M. Bieliková, P. Návrat, V. Rozinajová: members of programme committee

- WIRSS 2010 – 3rd International Workshop on Web Information Retrieval Support Systems, 2010 IEEE/WIC/ACM International Conference on Web Intelligence, Toronto, Canada, August 31, 2010 – P. Návrat: member of programme committee

- Znalosti 2010 – Annual Conference on Knowledge and Intelligent Systems, February 3-5, 2010, Jindřichův Hradec, Czech Republic – M. Bieliková, P. Návrat, D. Chudá, V. Rozinajová: members of programme committee, P. Návrat: member of steering committee

10 Regional Networking Academy

E-mail: info@cisco.fiit.stuba.sk
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Regional Networking Academy (RCNA FIIT STU) consists of three multipurpose research and pedagogical laboratory facilities designated for education in the field of computer networks at all three degrees of study programme Computer and Communication Systems and Networks and for education of subjects related to Computer Networking of the study programme Informatics.

Except filling study programs Regional Networking Academy provides complete courses and study programs in the field of computer networks as a part of Cisco Networking Academy Program − NetAcad. Throughout these courses students gain the necessary knowledge and practical skills to successfully pass Cisco Certified Networking Associate (CCNA) and Cisco Certified Networking Professional (CCNP) certification exams. These exams are well known and highly recognized by the industry. Education that is a part of the Academy offer complete spectrum of courses, starting with basic principles of how computer networks work and continuing with modern networking technologies such as IP Telephony and Wireless Communication based on IEEE 802.11 standards (WiFi). Laboratory facilities are equipped with modern communication technology including hardware routers, hardware switches, hardware firewalls, PCs with connection to the Internet and other necessary components for the purpose of practical education in the field of computer networks.

RCNA FIIT STU offers technological environment for research in the field of modern methods of communication in the computer networks. It creates quality conditions for solving research grants in the field of methods and resources for creating security and management of communication and mobile computer systems. Pedagogical process is greatly enhanced by providing the necessary support for practical learning during the education of subjects related to computer networking throughout all three degrees of study program Computer systems. Within the education process of RCNA prepares instructor training of 24 Local Cisco Networking Academies in the Slovakia and prepares students for CCNA and CCNP certification exams.

10.1 Staff

Director
Pavel Čičák, Associate Professor, CCNA, CCAI

Administrative Department
Marušincová Zuzana

Instructor Staff
Boris Dado
Igor Grellneth, PhD., CCNA, CCNP, CCAI
Katarína Jelemenská, PhD.
Margaréta Kotočová, Associate Professor, CCNA, CCAI
Dušan Malina
Peter Mesjar, CCNA, CCNP, CCAI, CCIE
Peter Vilhan
Filip Burda, CCNA, CCNP
Peter Havrila, CCNA, CCNP
Adrián Chovan, CCNA

Engineering Staff
Dušan Bernát
Roman Stovíček, PhD.

10.2   Projects

Mobile Education Center (HP Technology for Teaching)

Project leader:	P. Čičák
Members:	D. Bernát, B. Dado, K. Jelemenská, M. Kotočová
Supported by:	Hewlett Packard
Duration:	*since* September 2007
Description:	The main goal of the project is the education innovation by means of convenient utilization of capabilities, provided by the newest IT technologies, including mobile technology, into the learning environment. Thus one of the most important goals of a modern school is to be reached, that each graduate in its future job should be able to apply information and communication technologies. A mobile laboratory represents more effective way of exploitation existing technological equipment. The activities that does not require technological equipment, can take place in mobile laboratory.

10.3 Study programmes

- Study program for preparation for certification exam CCNA
- Study program for preparation for certification exam CCNP
- Study program for preparation for certification exam WLSS
- Study program for preparation for certification exam Cisco Firewall Specialist
- Study program for preparation of specialists in the field of IP Telephony

10.4   Cooperation

Cooperation in Slovakia

- Regional Networking Academy, Faculty of Electrical Engineering and Information Technology, Technical University in Košice
- Regional Networking Academy, Faculty of Management Science and Informatics, University of Žilina
- CISCO Systems Slovakia, Ltd.
- GTEC, Ltd.
- SOITRON, Ltd.
- DITEC Ltd.
- Tempest, Ltd.
- Hewlett-Packard Slovakia Ltd.
- IBM Slovakia Ltd.
- Microsoft Slovakia Ltd.
- Siemens Enterprise Communications Ltd.

International Cooperation

- Regional Cisco Networking Academy, Czech University of Technology, Prague, Czech Republic
- Regional Cisco Networking Academy, Faculty of Information Technologies, Technical University in Brno, Czech Republic
- Regional Cisco Networking Academy, Department of Computers, University of West Bohemia in Pilsen, Czech Republic
- Regional Cisco Networking Academy, Technical University in Ostrava, Czech Republic
- CATC Vienna, Austria
- CATC Birmingham, UK

11 FIIT Personnel

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BARTOŠ, Pavol, Ing.	Institute of Informatics and Software Engineering
BÁTORYOVÁ, Magda	Registry
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BREZNENOVÁ, Soňa	Deanship – Personal Resources
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