

**FACULTY OF INFORMATICS  
AND INFORMATION TECHNOLOGIES**

---

[www.fiit.stuba.sk](http://www.fiit.stuba.sk)

**ANNUAL REPORT  
2006**

© 2007, Ľudovít Molnár, Mária Bieliková, Pavel Čičák, Tibor Krajčovič,  
Milan Kolesár, Margaréta Kotočová, Pavol Návrat, Vladimír Vojtek

Faculty of Informatics and Information Technologies  
Slovak University of Technology in Bratislava  
Ilkovičova 3  
842 16 Bratislava, Slovakia

Visit FIIT STU on the Web: [www.fiit.stuba.sk](http://www.fiit.stuba.sk)

Editor: Mária Bieliková  
Copy Editor: Mária Hricová, Milan Kolesár, Jiří Pospíchal, Valentino Vranić  
Text Design & Composition: Mária Bieliková  
Cover Designer: Peter Kaminský

Published by:  
Vydavateľstvo STU  
Vazovova 5, Bratislava, Slovakia

---

---

# Contents

---

---

<b>1</b>	<b>INTRODUCTION.....</b>	<b>5</b>
<b>2</b>	<b>FACULTY MANAGEMENT BODIES .....</b>	<b>7</b>
2.1	ACADEMIC SENATE OF THE FACULTY .....	7
2.2	DEAN .....	8
2.3	SCIENTIFIC BOARD OF THE FACULTY .....	9
2.4	DISCIPLINARY COMMISSION OF THE FACULTY FOR STUDENTS .....	11
<b>3</b>	<b>STUDY.....</b>	<b>13</b>
3.1	UNDERGRADUATE STUDY (BC).....	13
3.2	MASTER STUDY (ING) .....	14
3.3	DOCTORAL STUDY (PHD).....	15
3.4	STUDENT CONFERENCES AND COMPETITIONS .....	16
<b>4</b>	<b>RESEARCH .....</b>	<b>17</b>
4.1	RESEARCH AREAS .....	17
4.2	SCIENTIFIC ACTIVITIES.....	17
4.3	PUBLICATIONS.....	20
4.4	RESEARCH PROJECTS.....	21
<b>5</b>	<b>NATIONAL AND INTERNATIONAL RELATIONS.....</b>	<b>23</b>
5.1	COOPERATION WITH SECONDARY SCHOOLS .....	23
5.2	COOPERATION WITH INDUSTRY .....	23
5.3	MOBILITY PROGRAMMES.....	24
<b>6</b>	<b>FACULTY SERVICES .....</b>	<b>27</b>
6.1	INFORMATION AND LIBRARY SERVICES .....	27
6.2	COMPUTING AND COMMUNICATION SERVICES .....	27
<b>7</b>	<b>INSTITUTE OF APPLIED INFORMATICS.....</b>	<b>29</b>
7.1	STAFF .....	29
7.2	TEACHING.....	30
7.3	THESES .....	31
7.4	RESEARCH LABORATORIES .....	35
7.5	RESEARCH PROJECTS .....	35
7.6	PUBLICATIONS.....	37

7.7	COOPERATION .....	40
7.8	MEMBERSHIP IN PROFESSIONAL ORGANISATIONS AND SOCIETIES .....	41
7.9	OTHER ACTIVITIES .....	42
<b>8</b>	<b>INSTITUTE OF COMPUTER SYSTEMS AND NETWORKS .....</b>	<b>45</b>
8.1	STAFF .....	46
8.2	TEACHING .....	46
8.3	THESES .....	47
8.4	RESEARCH LABORATORIES .....	52
8.5	RESEARCH PROJECTS .....	53
8.6	PUBLICATIONS .....	54
8.7	COOPERATION .....	55
8.8	MEMBERSHIP IN PROFESSIONAL ORGANISATIONS AND SOCIETIES .....	56
8.9	OTHER ACTIVITIES .....	57
<b>9</b>	<b>INSTITUTE OF INFORMATICS AND SOFTWARE ENGINEERING .....</b>	<b>59</b>
9.1	STAFF .....	60
9.2	TEACHING .....	61
9.3	THESES .....	63
9.4	RESEARCH LABORATORIES .....	68
9.5	RESEARCH PROJECTS .....	68
9.6	PUBLICATIONS .....	73
9.7	COOPERATION .....	79
9.8	MEMBERSHIP IN PROFESSIONAL ORGANISATIONS AND SOCIETIES .....	82
9.9	OTHER ACTIVITIES .....	84
<b>10</b>	<b>REGIONAL NETWORKING ACADEMY .....</b>	<b>87</b>
10.1	STAFF .....	88
10.2	PROJECTS .....	88
10.3	COOPERATION .....	88
<b>11</b>	<b>EVENTS PHOTO GALLERY .....</b>	<b>91</b>
<b>12</b>	<b>FIIT PERSONNEL .....</b>	<b>101</b>

---

---

# 1 Introduction

---

---

The Annual Report 2006 is the third Annual Report of the Faculty of Informatics and Information Technologies, Slovak University of Technology (FIIT STU) so that a reader can not only see the results reached by the Faculty in the year 2006, but he can also compare the results with those reached by the Faculty in previous years and a development of the Faculty as well. The Annual report 2006 shows how FIIT STU fulfilled expectations of IIT community in the fields of education and research, and how it has been managed. Following the long-term strategy of the Faculty development the new study programmes and the new research activities have been promised. These activities required suitable conditions – to extend human resources, to improve services, to build new laboratories. Therefore our first priority was to have comparable working conditions as our colleagues from other Faculties of STU have.

The evaluation of the Long term strategy for the year 2006 showed that almost all tasks for this year have been successfully fulfilled. We are proud that there is a high interest from the side of secondary schools students to study the study programmes we have prepared for them at our Faculty and that our graduates have no problem to find suitable job.

The Report shows the results achieved in research that is of high priority at FIIT STU. Interlink of research and education is not only declared but also documented by research activities of our students. The research results of our students have been presented at the 2<sup>nd</sup> Student Research Conference organised. But what is even more important, some of them were published in international journals or presented at conferences.

Unfortunately we have not been so successful in all our activities. Due to lack of room capacity for the staff as well as for the laboratories many activities have been slowed down or even stopped at all. Therefore all academic staff of the Faculty as well as all our students welcomed activities of the Rector of STU prof. Ing. Vladimír Bálež, DrSc. leading to the Project of the new building of the FIIT STU. We were also very pleased by the declaration of the new minister of education prof. Ing. Jan Mikolaj, PhD. at the opening ceremony of the new academic year 2006/2007 that Ministry of education SR is prepared to build up the new building for the FIIT STU. We see this declaration fully consistent with the government program to build up inclusive information society and knowledge economy in the Slovak Republic.

The Report shows the current state the Faculty has achieved in education, research and cooperation with business partners. It also shows the current stage in the long-term strategy of the Faculty development.



Prof. Ľudovít Molnár  
Dean of the FIIT STU



---

---

## 2 Faculty Management Bodies

---

---

According to the Act No. 131 of February 21, 2002 of 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 is divided into the employee part and the student part.

#### Members of the Academic Senate in 2006<sup>1</sup>

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

*Pavol Návrát, Professor*  
chair  
chair@as.fiit.stuba.sk

*Milan Kolesár, Professor*  
chair of the employee part

*Ján Máté*  
chair of the student part

---

<sup>1</sup> as in December 2006; the Academic Senate has been changed in the year of 2006 according to the Rules of election of its members.

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

Mária Hricová

*Members of the faculty part of the Academic Senate*  
staff@as.fiit.stuba.sk

Igor Grellneth, PhD.

Ladislav Hudec, Assoc. Professor

Ivan Kapustík

Milan Kolesár, Professor

Gabriela Kosková, PhD. – since September, Katarína Jelemenská, PhD.

Vladimír Kvasnička, Professor

Pavol Návrat, Professor

Martin Šperka, Assoc. Professor

*Members of the student part of the Academic Senate*  
students@as.fiit.stuba.sk

Martina Chabadová

Michal Ďurfina

Ján Máté

Tomáš Minčeff

### **Activities of the Academic Senate of the Faculty in 2006**

The Academic Senate of the Faculty of Informatics and Information Technologies in 2006

- discussed the proposal of study programmes of the Faculty 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 December 12, 2003 for a four year office period.



*Ludovít Molnár, Professor*

Dean

dean@fiit.stuba.sk

*Mária Bieliková, Professor*

Vice-Dean for research and human resources

vice dean\_research@fiit.stuba.sk

*Pavel Čičák, Assoc. Professor*

Vice-Dean for national and international relations and for public relations

vice dean\_cooperation@fiit.stuba.sk

*Margaréta Kotočová, Assoc. Professor*

Vice-Dean for education

vice dean\_education@fiit.stuba.sk

*Tibor Krajčovič, Assoc. Professor*

Vice-Dean for services and development

vice dean\_development@fiit.stuba.sk

## **2.3 Scientific Board of the Faculty**

### **Members of the Scientific Board in 2006<sup>2</sup>**

#### *Chair of the Scientific Board*

Ludovít 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

Pavol Horváth, Professor

Ladislav Hudec, Assoc. Professor

Milan Kolesár, Professor

Margaréta Kotočová, Assoc. Professor

Tibor Krajčovič, Assoc. Professor

Vladimír Kvasnička, Professor

Ludovít Molnár, Professor

Pavol Návrat, Professor

Zdenka Riečanová, Professor

Martin Šperka, Assoc. Professor

Vladimír Vojtek, Professor

---

<sup>2</sup> as in December 2006; the Scientific Board has been changed in the year of 2006 according to the Rules of election of its members.

*External members*

Milan Češka, Professor – Brno University of Technology  
 Ladislav Hluchý, PhD. – Institute of Informatics, Slovak Academy of Sciences  
 Štefan Kimlička, Professor – Comenius University in Bratislava  
 Josef Kolář, Assoc. Professor – Czech Technical University in Prague  
 Milan Krokavec, Professor – Technical University of Košice  
 Karol Matiaško, Assoc. Professor – University of Žilina  
 Stojan Russev, Professor – University of Economics in Bratislava  
 Štefan Kimlička, Professor, Comenius University in Bratislava (deceased)  
 Jiří Šafařík, Professor – University of West Bohemia in Pilsen

*Honorable members*

Norbert Frišťacký, Professor – Slovak University of Technology in Bratislava  
 (deceased)

**Activities of the Scientific Board of the Faculty in 2006**

The Scientific Board of the Faculty of Informatics and Information Technologies in 2006

- discussed an update of the long-term strategy of the Faculty development for the 2006 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 2006/2007 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),
- approved new member of the Board of Specialists in the Computer Engineering study PhD programme,
- discussed and submitted to the Scientific Board of the university proposals for nomination of "professors" to:
  - Jiří Pospíchal in the field of science Applied Informatics (Institute of Applied Informatics, Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava),
- discussed and approved the proposal for habilitation of "docents" to:
  - Elena Gramatová in the field of science Applied Informatics (Institute of Informatics, Slovak Academy of Sciences in Bratislava; Institute of Computer Systems and Networks, Slovak University of Technology in Bratislava),
- approved the Dean's proposals for filling posts of "hostující docents" to:
  - Tomáš Seidmann (Cdot AG, Wilen, Switzerland; Institute of Informatics and Software Engineering, Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava)

- Ľubor Šešera (Softec, s.r.o., Bratislava, Slovakia; Institute of Informatics and Software Engineering, Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava)
- conferred the academic degree „philosophie doctor“ on:
  - Michal Laclavík (Applied Informatics)
  - Martom Kardoš (Computer Hardware and Systems)
  - Zoltán Fazekas (Program and Information Systems)
  - Ladislav Huraj (Applied Informatics).

Prof. Ľudovít Molnár  
Chair Scientific Board FIIT STU

#### **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 in 2006**

*Chair of the Disciplinary Commission of the Faculty*

Ladislav Hudec, Assoc. Professor

*Members of the Disciplinary Commission of the Faculty*

Juraj Štefanovič, PhD.

Ivan Kapustík

Ján Žiak – student of the doctoral degree programme

Tomáš Vanderka – student of the master degree programme

Michal Ďurfina – student of the bachelor degree programme



---

---

## 3 Study

---

---

### 3.1 Undergraduate Study (Bc)

In the academic year 2005/2006 two accredited study programmes with regular length three years were offered:

- *Informatics*,
- *Computer Systems and Networks* (as an orientation in Computer Engineering).

Students in the “old” programme Informatics with regular length of four years progressed to study in two specialisations (study majors) – Software Engineering and Computer Engineering. This programme is accredited by the British Engineering Council following an accreditation process carried out by the Institution of Electrical Engineers (UK).

The following table shows the numbers of full-time bachelor programme students throughout the study (from the first to the final year). In the academic year 2002/2003 the students of the Telecommunication specialisation (the specialisation at the FEI STU) were included in the numbers of students (except of the first year).

*Numbers of the full-time bachelor programme students*

	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year <sup>3</sup>
Academic year 2002/2003 <sup>3</sup>	120	127	198	145
2003/2004 <sup>3</sup>	150	103	123	134
2004/2005	333	112	95 <sup>3</sup>	156
2005/2006	344	262	91	92
2006/2007	332	269	246	27

On the course we have 4 overseas students.

In the academic year 2005/2006 the students in “old” programme Informatics and first time the students in the both study programmes defended their bachelor theses and passed the final examination. The number of all graduates was 161 (108 in “old” programme, 27 in study programme Informatics and 26 in study programme Computer Systems and Networks).

---

<sup>3</sup> only the students in programme Informatics

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

- *Dean's Award – "Magna cum laude"*: Michal Bebjak, Michal Dobiš, Vladimír Hlaváček, Ivan Kišac, Michal Kurták, Michal Makový, Richard Schwartz, Michal Šimún,
- *Dean's Award – "Cum laude"*: Stanislav Angelovič, Viktor Bachratý, Viktor Tlacháč, Juraj Staník, Marek Tomša, Oto Vozár,
- *Dean's Award for Excellent Bachelor Thesis*: Michal Dobiš, Michal Kurták, Michal Šimún,
- *Dean's Praise Letter for Bachelor Thesis*: – Stanislav Angelovič, Michal Bartal, Zuzana Božoňová, Anton Frlička, Martin Kováčik, Matúš Kováčik, Peter Mesjar, Peter Mišák, Michal Okresa, Radko Štulrajter, Viktor Tlacháč, Marek Tomša, Jakub Vaňo, Richard Veselý.

1 181 applicants took place in the entrance examination to bachelor study programmes on April 11-12, 2006. The written examination consisted of mathematics and informatics with orientation on algorithmic and logic thinking (25 tasks, 75 points max.). 532 applicants were offered admission (366 Informatics, 166 Computer Systems and Networks), 332 out of them actually made use of it and were enrolled (221 Informatics, 111 Computer Systems and Networks).

### 3.2 Master Study (Ing)

In the academic year 2005/2006, FIIT STU offered three accredited study programmes:

- *Software Engineering* – regular length two or three years<sup>4</sup>,
- *Computer Systems and Networks* (as an orientation in Computer Engineering) – regular length two or three years<sup>5</sup>,
- *Information Systems* – regular length two or three years<sup>5</sup>.

The study programme Information Systems was offered in first time.

The "old" Informatics graduate study programme (with regular length three semesters) was offered too, but not for newly admitted students. The programme consists of two specialisations (study majors) – Software Engineering and Computer Engineering This programme is accredited by the British Engineering Council following an accreditation process carried out by the Institution of Electrical Engineers (UK).

*Numbers of the full-time master programme students*

	2002/2003	167
Academic	2003/2004	151
year	2004/2005	182
	2005/2006	231
	2006/2007	290

On the course we have 4overseas students.

<sup>4</sup> three years for students who have not obtained their first degree in related field.

Only one student studied in “old” programme Informatics and he successfully defended his master thesis and passed the final examination in spring semester 2005/2006. In study programmes 37 students graduated in spring semester 2005/2006 and 58 students in autumn semester 2006/2007:

- 54 graduates in Software Engineering,
- 29 graduates in Computer Systems and Networks and
- 12 graduates in Information Systems.

In autumn semester 2006/2007 first cohort of study programme Information Systems defended their master theses and passed the final examination.

The following students were conferred awards for their excellent results<sup>5</sup>:

- *Dean's Award “Magna cum laude”*:  
Dalimír Orfánus (spring semester),  
Michal Tvarožek (autumn semester),
- *Dean's Award “Cum laude”*:  
Peter Khandl, Michal Kubík, Peter Nagy (spring semester),  
Michal Barla, Peter Bartalos, Michal Jemala, Peter Kasan, Peter Kiselkov  
(autumn semester),
- *Dean's Award for Excellent Master Thesis*:  
Peter Nagy (spring semester),  
Michal Barla, Peter Bartalos (autumn semester, proposal),
- *Slovak Academy of Sciences Award for Excellent Master Thesis*:  
Jakub Mažgut (spring semester),  
Peter Kiselkov, Martin Komara (autumn semester, proposal),
- *Tatra Bank Award for Excellent Master Thesis*: Michal Tvarožek (proposal)
- *Dean's Praise Letter for Master Thesis*: Tomáš Backo, Michal Barla,  
Peter Bartalos, Peter Kiselkov, Martin Komara, Michal Kubík,  
Jakub Mažgut, Peter Nagy, Dalimír Orfánus, Peter Pullmann,  
Rastislav Solín, Ján Suchal, Kristián Szobi, Michal Tvarožek.

186 applicants took part in an entrance examination on July 7, 2006 as a prerequisite to the master programmes. 173 students were offered admission (69 Software Engineering, 67 Computer Systems and Networks, 37 Information Systems), 171 out of whom were enrolled.

### 3.3 Doctoral Study (PhD)

Quality and number of doctoral students significantly influence the results obtained in research. We observe an insufficient number of 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 now. The number of full-time doctoral students is on an increase, however in 2005 is on the same level as in 2004.

---

<sup>5</sup> Several awards are conferred once per academic year – the selection is made according proposals.

*Evolution of number of doctoral full-time students*

Year	1999	2000	2001	2002	2003	2004	2005	2006
Number of students	18	14	10	11	16	22	22	24

In 2006 one dissertation was defended:

- *Martin Karđoš: Automated formal verification for UML-based model driven design of embedded systems*
- *Zoltán Fazekas: Improving Variability in Software Configuration by Separation of Concerns*
- *Ladislav Huraj: Implanted chain certificate in distributed environment*

In 2006 the FIIT STU admitted students for study in newly accredited study programmes in doctoral study for the second time. Four accredited study programmes are currently offered:

- *Applied Informatics,*
- *Computer Systems and Networks* (as an orientation in Computer Engineering),
- *Program Systems* (as an orientation in Software Engineering),
- *Artificial Intelligence.*

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 in 2006 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:

- ACM International Collegiate Programming Contest 2006,
- ACM CZ Student Research Competition 2006,
- IEEE Computer Society International Design Competition (CSIDC 2006),
- ProFIIT 2006 – Programming Competition for Secondary School Students,
- RoboCup 2006, Soccer Simulation League,
- IIT.SRC 2006 – Informatics and Information Technologies Student Research Conference (to be mentioned in the following section devoted to research in more detail).

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. The 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,
- the 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.

### 4.2 Scientific Activities

In the year 2006, FIIT STU has organised or co-organised several scientific events:

- scientific conference *Cognition and Artificial Life VI*,
- scientific seminar *Technology for e-learning*,

- international congress *ITAPA 2006 – Congress on Information Technologies and Public Administration*,
- international scientific conference *SCCG 2006 – 22<sup>nd</sup> Spring Conference on Computer Graphics*,
- international scientific conference *SOFSEM 2006 – 32<sup>nd</sup> Theory and Practice of Computer Science*,
- scientific conference *Theory and Practice of Information Technology – ITAT 2006*,
- scientific workshop *Tools for Acquisition, Organisation and Presenting of Information and Knowledge* held in conjunction with ITAT 2006,
- international scientific conference *ITI 2006 – 28<sup>th</sup> International Conference on Information Technology Interfaces*.

The Faculty took part in providing technical and scientific programmes, especially through the work in programme committees of about 30 conferences, mostly international:

- ADBIS, East-European International Conference on Advances in Databases and Information Systems,
- AIAI, Artificial Intelligence in Theory and Practice (part of the IFIP World Computer Congress),
- Baltic BC&IS, International Baltic Conference on Databases and Information Systems,
- CESC, Central European Seminar on Computer Graphics,
- CSIT, Computer Science & Information Technology, Special Session on Dynamic Networks,
- Cognition and Artificial Life, Annual Conference on Cognition and Artificial Life,
- Conference on Data Security,
- DATAKON, Annual Conference on the Current Trends in Databases and Information Systems,
- DDECS, IEEE Workshop on Diagnostics and Design of Electronic Circuits and Systems,
- ECDL, European Conference on Research and Advanced Technology for Digital Libraries,
- ECI, International Conference on Electronic Computers and Informatics
- IADIS, Virtual Multi Conference on Computer Science and Information Systems – Intelligent Systems and Agents,
- ICIT, International Conference on Information Technology
- ICCS, International Conference on Computer Science
- ICCT, International Conference on Communication Technology
- ISD, International Conference on Information Systems Development,
- ISIM, International Conference on Information Systems Implementation and Modelling,

- ITAT, Workshop on Information Technologies – Applications and Theory
- ITI, International Conference on Information Technology Interfaces,
- MENDEL, International Conference on Soft Computing,
- RAAWS, International Workshop on Recommender Agents and Adaptive Web-based Systems,
- SCCG, Spring Conference on Computer Graphics,
- SCO, Sharable Content Objects
- SET, IFIP Working Conference on Software Engineering Techniques,
- SOFSEM, Annual Conference on Current Trends in Theory and Practice of Informatics,
- TPEV, Technologies for e-learning Seminar,
- ZNALOSTI, Annual Conference on Knowledge Acquisition, Representation and Exploitation,
- VU, International Conference Virtual University,
- WIKT, Workshop on Intelligent and Knowledge oriented Technologies,
- WEBIST, International Conference on Web Information Systems.

In 2006, FIIT STU organised or co-organised several events oriented to exhibition of research work of students (accomplished in the student projects). Above all, it was the students' research conference – IIT.SRC 2006 – which was held on April 26, 2006.

65 students presented 43 research projects arranged in following sections:

- Artificial Intelligence and Computer Science,
- Information Processing and Web Technologies
- Security and Computer Networks
- Software Engineering and Multi-agent Systems
- Information Systems, E-learning, Applied Informatics

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

- category of doctoral students Michal Takács (Fighting a Bank Spoofing Attack: An out of Page Security Channel, supervisor V. Vojtek) and Ján Máté (Computing Environment for Active File System, supervisor J.Šafařík),
- category of master students Michal Tvarožek (Personalized Navigation in the Semantic Web, supervisor M. Bielíková)
- category of bachelor students Michal Dobiš, Marek Tomša, Richard Veselý (NatuLore: System for Collaborative Publishing and Sharing of Contextual Information for Protecting Environment, supervisor M. Bielíková)

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

- Marek Neupauer (Analyses of Medical Data Using Interactive Evolutionary Computation, supervisor R. Jakša, Technical University Košice),
- Jozef Slezák (Estimating Software Quality by Small World Graph Concepts, supervisor R. Filkorn),

- Martin Adam, Imrich Balko, Rudolf Dačo, Michal Habala, Ondrej Hluchý, Tomáš Klempa (Database of Student's Knowledge and Skills, supervisor V. Grlický),
- Michal Barla (Interception of User's Interests on the Web, supervisor M. Bieliková).

The finals of the 4<sup>th</sup> ACM CZ Student Research Competition were organised in November 2006 in Prague. Ten best bachelor and master student projects from 7 universities from the Czech Republic and Slovakia were presented. The project

- NatuLore: System for Collaborative Publishing and Sharing of Contextual Information for Protecting Environment authored by our undergraduates Michal Dobiš, Marek Tomša and Richard Veselý (supervisor M. Bieliková)

won the 1<sup>st</sup> place.

### 4.3 Publications

Results of our research were published in 128 papers, which represents an increase in comparison with 2005. 94 scientific contributions were published in conference proceedings, 66 out of which were published in reviewed proceedings of international conferences. 17 scientific contributions were published in scientific journals and we have authors (co-authors -editors) of 4 books.

FIIT STU is a co-publisher of the international scientific journal „Computing and Informatics“ (until 2001 Computers and Artificial Intelligence). Two faculty staff members, Prof. Návrat and Prof. Kvasnička were members of its editorial board in 2006.

<i>Number of publications in 2006</i>	UAPI <sup>6</sup>	UISI	UPSS	FIIT
Books and parts of books	1	3	-	4
Scientific works published international scientific journals listed in CC	2	5	-	7
Scientific works published in other international/national scientific journals	-/1	5	3/1	10
Scientific works published in international conference proceedings	4	13	4	21
Scientific works published in local conference proceedings	15	27	3	45
Scientific works published in national conference proceedings	8	21	1	30
Conference proceedings editors	1	6	-	7
Published reviews	-	4	-	4

<sup>6</sup> UAPI – Institute of Applied Informatics

UISI – Institute of Informatics and Software Engineering

UPSS – Institute of Computer Systems and Networks

<i>Overview of other most significant activities in 2006</i>	UAPI	UISI	UPSS	FIIT
Membership in editorial boards of scientific journals	5	2	3	10
Membership in programme committees of international scientific conferences	7	17	3	27
Membership in programme committees of national scientific conferences	4	10	7	21
Membership in steering committees of scientific conferences	1	5	-	6

#### 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 of Slovak Republic 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 2006 four VEGA projects and four APVV projects progressed. One VEGA project was completed in 2006 and one new project was prepared and approved for funding in 2007-2009. Two new APVV projects were prepared and one was approved for funding 2007-2009.

One project of the Cultural and Educational Grant Agency of the Ministry of Education of Slovak Republic (KEGA) was completed and three others progressed in 2006. One new KEGA project was prepared and approved for funding. These projects are described in reports of institutes presented in the following parts.

The Faculty under the leadership of P. Návrat and V. Rozinajová participated in two and under the leadership of M. Šperka in one international project.

The projects were realized in research laboratories (description can be found in the parts devoted to individual institutes). In 2006 the following six research laboratories were included in the Slovak University of Technology network of high-tech laboratories:

- Laboratory of Database Technologies, head: V. Vojtek,
- Intelligent Systems Laboratory, head: P. Návrat,
- Advanced Software and Web Technologies Laboratory, head: M. Bieliková,
- Computer Networks Laboratory, head: P. Čičák,
- Embedded Systems Laboratory, head: T. Krajčovič,
- VLSI Design Laboratory, head: J. Hudec.

FIIT STU raised funds for several IT development projects supported by the Ministry of Education of Slovak Republic:

- Project studio for software development for mobile devices, project leader: M. Bieliková
- Laboratory of advanced information and communication technologies, project leader: V. Vojtek
- Project studio for final bachelor projects in informatics and information technologies, project leader: T. Krajčovič
- Project Centre of global network technologies , project leader: P. Čičák,
- Wireless access to FIIT computer network, project leader: B. Steinmüller

<i>Number of projects funded in 2006</i>	UAPI	UISI	UPSS
VEGA	2	1	1
KEGA	3	1	-
APVV	2	2	-
State programmes of research and development	-	1	-
European Social Funds	-	1	1
International projects	1	2	-
<b>FIIT STU</b>	<b>8</b>	<b>8</b>	<b>2</b>

<i>Overview of funds (in thousands SKK)</i>	UAPI	UISI	UPSS
VEGA	609	1 070	511
KEGA	299	530	-
APVV	846	1 411	
State programmes of research and development	-	6 900	-
European Social Funds	-	924	1 184
International projects	-	87	-
<b>FIIT STU</b>	<b>1 754</b>	<b>10 911</b>	<b>1 695</b>

Prof. Mária Bieliková  
Vice-Dean for Research

---

---

## **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, guarantees 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 19 secondary schools. In 2006 our faculty participated on the first annual set of CiscoOlymp2006 contest. One of the very successful activities is yearly organised Open Day.

### **5.2 Cooperation with Industry**

Cooperation with industry is oriented towards training and consultation activities and educational cooperation.

#### **Training and Consultation Activities**

FIIT STU has been very successful in training and consultations in cooperation with the companies Cisco System Slovakia Ltd., Microsoft Slovakia Ltd. and GTEC Ltd. In cooperation with Cisco Systems 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). Two instructors of our RCNA are trained in Birmingham thanks to remarkable support of the company Tronet Ltd. and DITEC Ltd. Except above mentioned programmes FIIT STU offers programmes for IP Telephony, WiFi Communication, Network Security and other special courses. In a similar way, in cooperation with Microsoft, FIIT STU joined in 2006 to the IT Academy Program.

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. In 2006 there were introduced a new equipped not only by a special net technology but by a special programming and reconfigurable circuits as well. That means there are now three Special Laboratories in this CTCC.

### **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 Tronet Ltd., BGS Ltd., DITEC Ltd., DATALAN Ltd., ASSET Ltd., HP Slovakia Ltd, Goldstein Fuchs, Asbis.

Some of above mentioned companies has directly co-operated on faculty education.

Other remarkable support the Faculty has obtained in cooperation with IBM Slovakia, Microsoft Slovakia, SUN Microsystems, SIEMENS and ORACLE. Cooperation with the above mentioned companies is based on special agreements.

### **5.3 Mobility programmes**

FIIT STU has established various international relations for the purposes of students' and teachers' mobility. Cooperation within the mobility programme Socrates/Erasmus is supported under these contracted agreements:

- Ghent University, [www.ugent.be](http://www.ugent.be)
- Ruhr-University Bochum, Faculty of Electrical Engineering and Information Technology, [www.atp.ruhr-uni-bochum.de](http://www.atp.ruhr-uni-bochum.de)
- University of Maribor, Faculty of Electrical Engineering and Computer Science, Slovenia, Institute of Informatics, [www.feri.uni-mb.si](http://www.feri.uni-mb.si)
- Brno University of Technology, Faculty of Information Technology, Czech Republic, [www.fit.vutbr.cz](http://www.fit.vutbr.cz)
- ISEP, Institut Superieur d'Electronique de Paris, Paris, [www.isep.fr](http://www.isep.fr)
- FH Nordakademie, Elmshorn, [www.nordakademie.de](http://www.nordakademie.de)
- TU Vienna, Vienna University of Technology, Faculty of Electrical Engineering and Information Technology, [www.tuwien.ac.at](http://www.tuwien.ac.at)
- Växjö University in Sweden, School of Mathematics and Systems Engineering, [www.vxu.se](http://www.vxu.se)
- Universität Leipzig, [www.uni-leipzig.de](http://www.uni-leipzig.de)
- Universidad Politécnica de Madrid, Facultad Informática-UPM, [www.fi.upm.es](http://www.fi.upm.es)
- Tallinn University of Technology, [www.ttu.ee](http://www.ttu.ee)

In 2006, three incoming Erasmus students have visited FIIT STU (from Brno, Madrid and Maribor) and two our teachers were visiting the ISEP Paris. In 2006 17 students of our faculty have applied for Erasmus-mobility abroad.

Besides the Socrates agreements, a special agreement of cooperation was established with the Institut Superieur d'Electronique de Paris (ISEP). Based on this agreement, students



from ISEP will be visiting FIIT STU each summer for the training period of 1 month (July) to do their mandatory students' internship. In summer 2006 we hosted 9 students.

In December 2006, a group of students from Hochschule Liechtenstein – Institut für Wirtschaftsinformatik, [www.hochschule.li/wirtschaftsinformatik](http://www.hochschule.li/wirtschaftsinformatik) has visited our university having one day of excursion and there is an interest about the future contacts.

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

Juraj Štefanovič, PhD.  
Socrates Erasmus Coordinator



---

---

## 6 Faculty Services

---

---

### 6.1 Information and Library Services

Centre for Information and Library Services at the Faculty of Informatics and Information Technologies (CIKS) provides information services for study and research purposes at FIIT STU.

The book catalogue contains more than 5 700 items, which are freely available in the Library. The catalogue can be found on <http://olib.cvt.stuba.sk>. The Centre for Information and Library Services purchased and acquired thanks to donation 49 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, EEE Computer Society Digital Library, EI Engineering Village 2, EIFL Direct – EBSCO host, IoP Electronic Journals, Journal Citation Report, Oxford Reference Online, The Scientific World, Web of Science, Willey Encyclopedia of Electrical and Electronics Engineering), include several fulltext accesses.

The Centre for Information and Library Services 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 computer network,
- new 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,
- 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 120 personal computers of the faculty

staff and PhD students, 160 personal computers and workstations in the education and research laboratories and 20 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  
Vice-Dean for Development

---

---

## 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 database systems, data mining, information processing in distributed environment of intelligent agents; further topics of interest lay in application of computer graphics in virtual reality systems and in systems of enhanced reality, in visualization and human – computer interaction; and in the area of computational intelligence (neural networks, evolutionary algorithms, artificial life, simulation of social systems).

The institute is responsible for the following degree programmes:

- Informatics (master degree),
- Applied informatics (doctoral degree).

### 7.1 Staff

#### Director

Vladimír Vojtek, Professor

#### Deputy Director

Vladimír Kvasnička, Professor

#### Administrative Department

Katarína Pribišová

#### Teaching Staff

Miroslav Galbavý

Vladimír Kvasnička, Professor

Jana Parížková

Jiří Pospíchal, Professor

Martin Šperka, Assoc. Professor

Juraj Štefanovič, PhD.

Branislav Steinmüller (part time)

Ondrej Strnád, PhD. (part time)  
Vladimír Vojtek, Professor

#### Researchers

Michal Čerňanský  
Matej Makula  
Viliam Solčány (part time)  
Ján Žiak

#### PhD Students

Peter Angelovič  
Michal Bielik  
Peter Drahoš  
Martin Hinka  
Peter Jurčovič  
Peter Kapec  
Alena Kovárová  
Peter Lacko  
Štefan Sudolský  
Michal Takács  
Peter Trebatický  
Ol'ga Zemanovičová

## 7.2 Teaching

### Undergraduate Study (Bc.)

Course	Semester	Credits	Lecturer
Algebra and Discrete Mathematics	Autumn	6	V. Kvasnička, J. Pospíchal
Computer Graphics	Autumn	6	M. Šperka
Database Systems	Autumn	6	V. Vojtek
IT Security Management	Spring	5	O. Strnád
Mathematical Logic I	Autumn	6	V. Kvasnička
Modelling and Simulation	Autumn	6	J. Štefanovič
Operating Systems	Autumn	6	J. Štefanovič

### Master Study (Ing.)

Course	Semester	Credits	Lecturer
Advanced Database Systems	Spring	5	V. Vojtek
Computer Graphics II	Autumn	5	M. Šperka
Multimedia Computer Systems	Spring	5	M. Šperka
Evolutionary Algorithms	Spring	5	J. Pospíchal
Neural Networks	Autumn	5	V. Kvasnička, M. Čerňanský

Course	Semester	Credits	Lecturer
Operating Systems Design	Spring	5	J. Štefanovič
Security and Management of Information Systems	Autumn	5	O. Strnád

### 7.3 Theses

#### Bachelor (Bc.) Theses

- Bachratý, Viktor: *Solving a brainteaser using a symbolic and subsymbolic approach of artificial intelligence*. May 2006. Supervisor: P. Lacko
- Bartal, Michal: *Image segmentation in computer vision*. May 2006. Supervisor: M. Šperka
- Bebjak, Michal: *Image segmentation in computer vision*. May 2006. Supervisor: M. Šperka
- Belušik, Michal: *Backup and recovery in databases*. May 2006. Supervisor: V. Vojtek
- Bielik, Tomáš: *Design of data model*. May 2006. Supervisor: J. Parížková
- Buchta, Marian: *Evolutionary minimizes of Boolean function using Quine and McCluskey method*. May 2006. Supervisor: V. Kvasnička
- Chamraz, Lubomír: *Application for mobile device*. May 2006. Supervisor: M. Čerňanský
- Cséfalvay, Peter: *How to frequent a bar?* May 2006. Supervisor: J. Pospíchal
- Ďuriš, Jozef: *System for supporting creation of term timetables*. May 2006. Supervisor: M. Galbavý
- Hirjak, Ondrej: *Virtual lens simulation by interactive complex structure graph model rendering*. May 2006. Supervisor: M. Šperka
- Homola, Michal: *Using of evolutionary algorithms to solve an astrophysical problem*. May 2006. Supervisor: P. Lacko
- Horňák, Lubomír: *Content management system – user module*. May 2006. Supervisor: M. Galbavý
- Jackovič, Miroslav: *Nonograms*. May 2006. Supervisor: P. Trebatický
- Jakuš, Miroslav: *Ants in the bar*. May 2006. Supervisor: J. Pospíchal
- Jónás, Márk: *Communication network as a graph of “small world”*. May 2006. Supervisor: M. Markošová
- Kadora, Andrej: *System for exam schedule creating support*. May 2006. Supervisor: M. Galbavý
- Kišac, Ivan: *Determination of characteristics of network connection in range of Slovak Republic based on IP address*. May 2006. Supervisor: M. Makula
- Kobza, Michal: *Simulation library for optimization algorithms*. May 2006. Supervisor: J. Štefanovič

- Kováčik, Matúš: *Centralised monitoring of computer network devices*. May 2006. Supervisor: J. Štefanovič
- Kováčik, Martin: *Community-based categorization of information*. May 2006. Supervisor: M. Takács
- Košťál, Michal: *System for support of building exam schedules*. May 2006. Supervisor: M. Galbavý
- Kušnír, Štefan: *Development of player's behaviour against a static opponent in a team game*. May 2006. Supervisor: J. Žiak
- Kútny, Martin: *Modelling user behaviour characteristics for identification*. May 2006. Supervisor: V. Vojtek
- Leitmanová, Stanislava: *Evolutionary minimization of Boolean function based on the Quine- McCluskey method*. May 2006. Supervisor: V. Kvasnička
- Maslenová, Zuzana: *Support for automated program evaluation*. May 2006. Supervisor: B. Steinmüller
- Majer, Juraj: *Modelling language network in the process of learning*. May 2006. Supervisor: M. Markošová
- Mirc, Roman: *Visualization and communication library for TwinCAT Backhoff PLC platform*. May 2006. Supervisor: M. Čerňanský
- Mišák, Peter: *Emergence of agent cooperation*. May 2006. Supervisor: P. Lacko
- Okresa, Michal: *Support for automated program evaluation*. May 2006. Supervisor: B. Steinmüller
- Ondáč, Stanislav: *Support for automated program evaluation*. May 2006. Supervisor: B. Steinmüller
- Ondruška, Ján: *System for animation of human skeleton walking*. May 2006. Supervisor: M. Šperka
- Petráková, Zuzana: *System for web page management – user module*. May 2006. Supervisor: M. Galbavý
- Pulai, Zoltán: *Human motion analysis in augmented reality environment*. May 2006. Supervisor: M. Šperka
- Pálka, Marek: *System for web site management - administrator*. May 2006. Supervisor: M. Galbavý
- Péti, Peter: *Webportal for student project management*. May 2006. Supervisor: M. Makula
- Ruttkay-Nedecký, Peter: *Simulation library for agent based models*. May 2006. Supervisor: J. Štefanovič
- Selnekovič, Tomáš: *Use of neural networks for control of complex systems*. May 2006. Supervisor: V. Kvasnička
- Somogyi, Tibor: *Protecting web applications against evil-minded users*. May 2006. Supervisor: M. Takács
- Somorovský, Juraj: *The use of neural networks for “distant” controlling of complex systems*. May 2006. Supervisor: V. Kvasnička



- Stanček, Martin: *System for animation of walking human skeleton*. May 2006. Supervisor: M. Šperka
- Svetlík, Matej: *Infrared camera image analysis*. May 2006. Supervisor: V. Vojtek
- Székely, Ondrej: *Symbolic approach to solving the problem of Copycat*. May 2006. Supervisor: V. Kvasnička
- Štulrajter, Radko: *Centralised monitoring of computer network devices*. May 2006. Supervisor: J. Štefanovič
- Taraba, Tomáš: *Web pages management system - user*. May 2006. Supervisor: M. Galbavý
- Tréger, Milan: *Internet portal for manage student's projects*. May 2006. Supervisor: M. Makula
- Tóth, Tomáš: *Explorative building of opponent's model and its usage in prediction of opponent's behavior*. May 2006. Supervisor: J. Žiak
- Valachovič, Peter: *Language as a small world network*. May 2006. Supervisor: M. Markošová
- Vaňo, Jakub: *Monitor for RoboCup aimed at presentation*. May 2006. Supervisor: P. Trebatický
- Vozár, Oto: *Editor of neural networks*. May 2006. Supervisor: M. Čerňanský
- Vrba, Pavol: *Simulator of machine instruction flow*. May 2006. Supervisor: J. Parížková
- Zeman, Matúš: *Application for mobile device*. May 2006. Supervisor: M. Čerňanský

#### Master (Ing.) Theses

- Arpáš, Richard: *Optimization of Echo state neural networks using evolutionary algorithms*. May 2006. Supervisor: J. Pospíchal
- Bernaták, Ivan: *Co-evolution of Universal grammar*. May 2006. Supervisor: V. Kvasnička
- Berta, Igor: *Dynamic reservoir of Echo state neural networks*. December 2006. Supervisor: M. Makula
- Blanárik, Ivan: *Online adaptation of echo state neural networks*. December 2006. Supervisor: M. Makula
- Fenik, Andrej: *Interactive collaborative three-dimensional visualization of models and data*. December 2006. Supervisor: J. Žiak
- Fíflík, Andrej: *Application of augmented reality in virtual reality walk*. December 2006. Supervisor: M. Šperka
- Gono, Pavol: *Detecting non-standard states in operating system*. May 2006. Supervisor: B. Steinmüller
- Halák, Martin: *Distributed data management in collaborative virtual reality*. December 2006. Supervisor: J. Štefanovič
- Jenčo, Martin: *Creation of waitlist using biometric data*. May 2006. Supervisor: B. Steinmüller

- Kasan, Peter: *New approaches in recurrent neural network area and its application in robotics*. December 2006. Supervisor: M. Čerňanský
- Kiselkov, Peter: *Distributed data management in collaborative virtual reality*. December 2006. Supervisor: J. Štefanovič
- Komara, Martin: *Global optimization using quantum computing*. December 2006. Supervisor: V. Kvasnička
- Kriška, Jozef: *Neuroevolution through augmenting topologies*. December 2006. Supervisor: M. Makula
- Lenický, Mário: *Intentional Programming*. December 2006. Supervisor: J. Žiak
- Manduch, Jozef: *Applications of virtual reality in visual data mining*. December 2006. Supervisor: M. Šperka
- Matuška, Miroslav: *Automatic meter reading system for electricity meters*. December 2006. Supervisor: V. Vojtek
- Prikryl, Peter: *Occam Interpreter*. December 2006. Supervisor: V. Solčány
- Pozor, Martin: *Visualization of graphs in virtual reality environment*. May 2006. Supervisor: M. Šperka
- Roháček, Marek: *System for obtaining additional information in schedules design process*. December 2006. Supervisor: M. Galbavý
- Sabo, Michal: *Automatic meter reading system for gas and water*. December 2006. Supervisor: V. Vojtek
- Straka, Vladimír: *System for obtaining of additional information for schedules designing*. December 2006. Supervisor: M. Galbavý
- Szobi, Kristián: *Tasks by approaches based on support vector machines*. December 2006. Supervisor: M. Čerňanský
- Szöcs, Vojtech: *Algorithmic chemistry in genetic programming*. December 2006. Supervisor: J. Pospíchal
- Sýkora, Peter: *Computing Environment for Active File System*. December 2006. Supervisor: B. Steinmüller
- Škovran, Ivan: *Creation and comparison of 2D and 3D educational simulation*. December 2006. Supervisor: A. Kovárová
- Tínes, Marián: *Using knowledges in creation of the schedules*. May 2006. Supervisor: M. Galbavý
- Tóth, Peter: *Printed documents with virtual illustrations*. May 2006. Supervisor: J. Štefanovič
- Velický, Dušan: *Time table optimize system*. December 2006. Supervisor: M. Galbavý
- Zahorák, Dalibor: *System for collecting additional information*. May 2006. Supervisor: M. Galbavý
- Žáry, Ondrej: *Detecting non-standard states in operating system*. December 2006. Supervisor: B. Steinmüller

## 7.4 Research Laboratories

### Laboratory of Database Technologies

*Head:* V. Vojtek  
*Contact:* vladimir.vojtek@fiit.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.

## 7.5 Research Projects

### Information infrastructure for embedded knowledge processing in distributed environment (VEGA 1/3103/06)

*Project leader:* V. Vojtek  
*Members:* V. Kvasnička, M. Šperka, J. Štefanovič, J. Pospíchal, M. Galbavý, V. Solčány, J. Parížková, P. Angelovič, M. Bielik, A. Kovárová, M. Takáč, J. Žiak, P. Jurčovič  
*Supported by:* Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences  
*Duration:* January 2006 – December 2008  
*Description:* The goal of the project is a conceptual design of methods and tools for modelling and simulation of information infrastructure aimed to gather, store, process and present knowledge, which is scattered in a distributed environment of internet and various kinds of information, mobile and satellite networks. The next goal is implementation of information infrastructure subsystems, where it will be possible to organise knowledge into structures (on the basis of data mining methods) for knowledge processing, storing, presentation and visualization with help of augmented reality systems and multimedia tools. In this process the knowledge will be easily comprehensible for users. A pilot application will be targeted at e-learning and intelligent infrastructures. The presented goals are compatible with the strategic priorities of 7th EU Research Framework Programme.

### Echo State Neural Networks (VEGA 1/1047/04)

*Project leader:* J. Pospíchal  
*Members:* V. Kvasnička, M. Čerňanský, Š. Babinec, J. Babjak, P. Lacko, M. Makula, P. Sarkoci, P. Trebatický  
*Supported by:* Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences  
*Duration:* January 2004 – December 2006

*Description:* The goal of the project is to study a modern approach to recurrent neural networks, which is particularly suitable for both a time series prediction and modelling of cognitive processes in artificial neural systems. Neural network in this approach includes a block of neurons with a recurrent architecture, which is randomly generated and the weight coefficients of its connections are fixed during the learning stage of the network. The input activities incoming to the neural network will be mapped onto a rich dynamic structure of activities of hidden neurons, which are used as an input to the output neurons layer. The learning of this network consists in adjusting of weight coefficients between hidden neurons and output neurons. Weight coefficients between the hidden and the input neurons and in-between the hidden neurons are randomly generated and do not change during the learning stage. Current research emphasis is on an evolutionary improvement of networks bringing more robustness to the predictions quality.

**Theoretical studies and applications of neural networks with "echo states" in artificial intelligence and cognitive science (APVT-20-002504)**

*Project leader:* V. Kvasnička  
*Members:* J. Pospíchal, M. Čerňanský, Š. Babinec, J. Babjak, P. Lacko, M. Makula, P. Sarkoci, P. Trebatický, Š. Sudolský, V. Solčány  
*Supported by:* Slovak Research and Development Agency  
*Duration:* January 2005 – December 2007  
*Description:* Neural networks with echo states are studied, which are currently considered as one of the greatest innovations of neural networks towards the increase of their biological plausibility. The project studies microneural structures containing several hundreds of neurons, while the adaptation affects only the connections between hidden and output neurons with 1-step learning methods. Time in these networks is discrete, which allows also a simple introduction of a communication by spikes on synaptic connections between neurons. We are interested first in smaller modules - networks solving simpler tasks. By combination of these modules into greater wholes we shall obtain neural networks capable to solve also complex tasks. The model should be an important tool for modelling of reasoning processes and classification in artificial intelligence and cognitive science.

**Theoretical study and practical applications of recurrent neural networks based on architectural bias (APVT-20-030204)**

*Project leader:* M. Čerňanský  
*Members:* M. Makula, P. Trebatický, P. Lacko  
*Supported by:* Slovak Research and Development Agency  
*Duration:* January 2005 – December 2007  
*Description:* Markovian architectural bias is a property related with a fixed point attractor state space dynamics of architectures with recurrent connections. Models such as neural prediction machine and fractal prediction machine successfully use this type of dynamics, as well as the novel Echo State Networks with huge randomly interconnected hidden layer. We study the network's state space dynamics and its

possible adjustment so some specific sequences can be successfully processed by proposed methods. We will specify practical problem domains (for example image or sound processing), where proposed approaches can be used.

### **Interdisciplinary study Design of interactive digital media (KEGA-3/3206/05)**

*Project leader:* M. Šperka  
*Members:* A. Kovárová, M. Bielik  
*Supported by:* Cultural and Educational Grant Agency of the Ministry of Education of Slovak Republic  
*Duration:* July 2005 – December 2008  
*Description:* The goal of the project is to prepare conception of interdisciplinary study program “design of digital media” (design of Internet sites interface, interactive CD/DVD ROMs, user interfaces of the broad products spectrum - ranging from mobile phones, information kiosks, and automatic teller machines until the interfaces of complex control systems - which penetrate to all spheres of human activity. They need - besides the technological foundations (electronics and software) user friendly interface, too. The design of such interfaces requires the knowledge and skills from the informatics as well as from design fields. In many countries exist special university level schools dedicated to this area of study, but in Slovakia does not exist. Optimal solution is to create this study program in the frames of existing schools, e.g. Slovak University of Technology (Faculty of Informatics and Information Technologies and Faculty of Architecture) - where the necessary infrastructure already exists.

### **Joint Degree in Media Development Engineering (29079-IC-1-2005-1-DK-ERASMUS-PROG/3)**

*Project leader (Slovakia):* M. Šperka  
*Members:* A. Kovárová, M. Galbavý  
*Supported by:* EU Socrates, Audiovisual and Culture Executive Agency, Brussels  
*Duration:* September 2006 – January 2010  
*Description:* Development of curriculum and implementation of a bachelor degree in media development that run simultaneously in Denmark (Herning), Belgium (Gent), Finland (Lahti), Poland (Bielsko- Biala), Slovakia (Bratislava), Spain (Terrassa). The studies will cover both technical and artistic aspects of media.

## **7.6 Publications**

### **Journals**

- BABINEC, Š., POSPÍCHAL, J.: Merging Echo State and Feedforward Neural Networks for Time Series Forecasting. In: *LNCS Sublibrary: Theoretical Computer Science and General Issues*. Springer-Verlag Berlin Heidelberg (2006) 367-375.
- KVASNIČKA, V., POSPÍCHAL, J.: Deductive rules in holographic reduced representation. In: *Neurocomputing*. Amsterdam, Elsevier Science B.V., Vol. 69, No. 16-18 (2006) 2127-2139.

PARÍZKOVÁ, J.: Effectiveness of Program in Different Language Levels. In: *Technology of Education*, No.3, Slovdidac, Nitra (2006) 9-12 (in Slovak).

PARÍZKOVÁ, J.: Specialness of writing string in assembly language. In: *Informatics in school*, No. 31 (2006) 18-22 (in Slovak).

### International Conferences

DRAHOŠ, P., ŠPERKA, M.: Face Expressions Animation in e-Learning. In: *E-Learning Conference '06*, Coimbra, Portugal, University of Coimbra (2006) 13-18.

DRAHOŠ, P.: Effective Realtime Human Face Animation. In: *Spring Conference on Computer Graphics SCCG 2006*: in cooperation with ACM SIGGRAPH and Eurographics, Častá Papiernička, Comenius University in Bratislava (2006) 63-64.

KOVÁČ, M., ŠPERKA, M.: E-learning and Distributed Collaborative Environment Based on Web3D. In: *E-learning II and Knowledge Society with Section for PhD Students in Computing*. SOCRATES-ERASMUS 114046-CP-1-2004-1-BG-ERASMUS-TN. Gent, Communication and Cognition (2006) 33-45.

KOVÁČ, M.: Distributed Collaborative Environment Based on Web3D. In: *10<sup>th</sup> Central European Seminar on Computer Graphics*. Častá Papiernička (2006) 51-56.

POSPÍCHAL, J., KVASNIČKA, V.: Local Minority Game without History. In: *MENDEL 2006 – 12<sup>th</sup> International Conference on Soft Computing*, Brno, Brno University of Technology (2006) 197-202.

ŠTEFANOVIČ, J.: An Operating System Model with the Process Control at the Level of Programming Statements. In: *ISIM 2006 – 9<sup>th</sup> International Conference on Information Systems Implementation and Modelling*, Přerov, MARQ Ostrava, (2006) 39-46.

### Local and National Conferences

ANGELOVIČ, P.: From Decision Trees to Random Forests. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Vojtek, V. (2006) 47-54.

ANGELOVIČ, P., VOJTEK, V.: Random Forest Optimization Using Artificial Intelligence. In: *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006) 19-23 (in Slovak).

BABINEC, Š.: Forecasting with Combined Echo State and Feedforward Neural Networks. In: *IIT.SRC 2006 – Student Research Conference 2006*, Slovak University of Technology, Supervisor: Pospíchal, J. (2006) 55-62.

BOBRÍK, M.: RNA like artificial life system. In: *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006) 79-87 (in Slovak).

ČERŇANSKÝ, M.: Recurrent Neural Networks – Algorithms and Implementation. In: *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006) 129-135 (in Slovak).

KASAN, P., ČERŇANSKÝ, M.: Robot Controller Based on LSTM Network. In: *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006), 197-203 (in Slovak).

- KOVÁROVÁ, A.: Interactivity in Educational Applications Using Virtual Reality. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Šperka, M. (2006) 293-300.
- KVASNIČKA, V.: Cognitive science, artificial intelligence, and bounded rationality. In: *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006), 233-251 (in Slovak).
- KVASNIČKA, V.: Cognitive science, artificial intelligence and theory of bounded rationality. In: *Cognition 2006*, Prague, Institut of Psychology CAS, (2006) 92-95 (in Slovak).
- LACKO, P.: Comparison of Symbolic and Subsymbolic approach in Artificial Intelligence Game Play. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Kvasnička, V. (2006) 63-70.
- LACKO, P.: Reinforcement learning. In: *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006) 253-258 (in Slovak).
- MAKULA, M.: Dynamical Reservoir of Echo State Network. In: *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006) 273-281 (in Slovak).
- POSPÍCHAL, J., KVASNIČKA, V.: Decisions in social network. In: *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006) 315-327 (in Slovak).
- SUDOLSKÝ, Š.: Team Strategy in Multi-Agent Environment. In: *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006) 347-353 (in Slovak).
- SZOCS, V.: Algorithmic Chemistry in Genetic Programming. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Pospíchal, J. (2006) 40-46.
- TAKÁCS, M.: Fighting a Bank Spoofing Attack: An out of Page Security Channel. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Vojtek, V. (2006) 318-324.
- TREBATICKÝ, P.: Prediction with Echo state Networks. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Pospíchal, J. (2006), 79-86.
- TREBATICKÝ, P.: Text correction with Echo state neural networks. In: *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006) 393-399 (in Slovak).
- ŽIAK, J.: Programming Environment with Integrated Grid Support. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Šperka, M. (2006) 251-258.
- ŽIAK, J.: Cognition in visualisation. In: *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006) 429-433 (in Slovak).

## Books

- BIELIKOVÁ, M., NÁVRAT, P., ANDREJKO, A., EZZEDINE, A. B., FRIVOLT, G., JAKUBÍK, J., KISELKOV, M., MAJTÁS, L., MÁTÉ, J., POLICKÝ, I., SOLČÁNY, V., ŠECHNÝ, M., VNUK, M.: *Essays on selected topics of software engineering*. Volume 1, Slovak University of Technology (2006) 226 p. (in Slovak).

KVASNIČKA, V., POSPÍCHAL, J.: *Mathematical logic*. Slovak University of Technology (2006) 399 p. (in Slovak).

KELEMEN, J., KVASNIČKA, V. (Eds) *Cognition and Artificial Life VI*, Třešť, Silesian University Press (2006) 454 p. (in Slovak).

### Abstracts

KVASNIČKA, V.: Artificial Chemistry and Molecular Darwinian Evolution in Silico: Invited lecture. In: *EUCO-CC6, 6<sup>th</sup> European Conf. on Computational Chemistry*, Tále, Book of Abstracts, Comenius University in Bratislava (2006) pp. 27.

## 7.7 Cooperation

### Cooperation in Slovakia

- Faculty of Social and Economical Sciences of Comenius University in Bratislava, Project of development of Cognitive Science (responsible person E. Gál, PhD.)
- Faculty of Mathematics, Physics and Informatics of Comenius University in Bratislava, project of development of Cognitive Science (responsible person J. Šefránek, Assoc. Professor, J. Rybár, Assoc. Professor)
- Faculty of Electrical Engineering and Informatics, Technical University of Košice, Development of modern methods of education in Computational Intelligence (responsible person P. Sinčák, Professor)
- Faculty of Mathematics, Physics and Informatics of Comenius University in Bratislava, Neural network modelling of complex systems (responsible person I. Farkaš, PhD.)
- Ministry of Economy of the Slovak Republic, design of information system

### International Cooperation

- Neural and Knowledge Based Systems (Central European Exchange Program for University Studies). CEEPUS - HR - 6 Coordinator: S. Ribaric, University of Zagreb, Croatia. Subcoordinator for STU: V. Vojtek
- Institute fuer Softwaretechnik und Interaktive Systeme, Fakultät für Informatik, Technische Universität Wien, Austria (agreement about exchange of students)
- Institute Supérieur 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) – preparation of common syllabus and mobility for students and teachers
- Faculty of Philosophy and Science, Silesian University in Opava, Czech Republic: Organisation of a seminar on Artificial Life and Cognition (responsible person J. Kelemen, Professor)
- Faculty of Mathematics and Natural Sciences II, Institute of Informatics, Humboldt University of Berlin, database and information systems



### Visits of Staff Members

- *V. Kvasnička*: Cogscience seminar, University of Economics, Prague, Czech Republic, February 2-3, 2006
- *M. Šperka*: VOCINET Instructors Network Conference and Europrix Multimedia Top Talent Award Festival 2005, Vienna, Austria, March 3-5, 2006
- *J. Štefanovič*: IXth International Conference Information Systems Implementation and Modelling ISIM 2006, Přerov, Czech Republic, April 25-27, 2006
- *J. Štefanovič*: Institut Supérieur d'Electronique de Paris, France, May 22-28, 2006
- *V. Kvasnička, J. Pospíchal, M. Čerňanský, P. Angelovič, P. Lacko, M. Makula, Š. Sudolský, P. Trebatický, J. Žiak*: Cognition and Artificial Life VI, Třešť, Czech Republic, May 28-June 1, 2006
- *J. Pospíchal*: MENDEL 2006, Brno, Czech Republic, June 1-2, 2006
- *M. Čerňanský*: University of Birmingham, United Kingdom, June 6 – August 4, 2006
- *P. Lacko, M. Makula, P. Trebatický*: International Summer School on Pattern Recognition, University of Loughborough, United Kingdom, July 21-29, 2006
- *M. Šperka*: The e-learning 06 Conference, Universidade de Coimbra, Portugal, September 15-11, 2006
- *V. Kvasnička*: Cognition 2006, Prague, Czech Republic, October 5-7, 2006
- *V. Kvasnička*: Chaos and order in society and sociology, Charles University, Prague, Czech Republic, October 12-14, 2006
- *M. Šperka*: EADIM Academic Network Conference and Top Talent Award 2006, Vienna, Austria, November 24-26, 2006
- *A. Kovárová, I. Škovran, A. Fíflík, M. Komara, D. Lamoš, M. Jajcaj, V. Hlaváček*: Top Talent Award 2006, Vienna, Austria, November 14, 2006
- *P. Trebatický + 6 students*: Budapest University of Technology and Economics, Hungary, November 17-20, 2006
- *M. Šperka*: Socrates program “Media Development Engineering” meeting, KaHo Sint Lieven, Belgium, December 3-6, 2006

### Visitors to the Institute

- *Stefan Larsson*, EON Reality, USA – Sweden, November 2006, short visit, received by M. Šperka
- 9 students from Institut Supérieur d'Electronique de Paris (I.S.E.P.), Paris, France for 4-weeks study stay in June-July 2006, supervised by J. Štefanovič

## 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.

#### *Vladimír Kvasnička*

- Slovak Academic Society (founding member, since 1997)

- Slovak Artificial Intelligence Society (chairman, since August 29, 2000)
- Slovak Computer Science Society (member, since 1996)

*Jiří Pospíchal*

- Slovak Artificial Intelligence Society (member, since August 29, 2000)
- Slovak Computer Science Society (member, since 1996)

*Martin Šperka*

- Slovak Society for Informatics (member, since 2006)

### **International Professional Organisations and Societies**

*Martin Šperka:*

- European Academy of Digital Media (EADIM) (fellow, since 2001)
- EADIM Instructors Network (vice chairman, since 2003)

*Viliam Solčány*

- ACM member (member, since May 2004)

*Jiří Pospíchal*

- EURO Working group on fuzzy sets (EUROFUSE) (member, since 1999)

*Peter Trebatický*

- IEEE (member, since 2006)

*Michal Čerňanský*

- International Neural Network Society (member, since 2006)

### **7.9 Other Activities**

- Journal of Computing and Information Technology – V. Vojtek (since 1993), 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
- ITI 2006 – 28<sup>th</sup> International Conference on Information Technology Interfaces, Dubrovnik – V. Vojtek: member of programme committee
- Cognition and Artificial Life VI, Třešť, Czech Republic – V. Kvasnička, scientific guarantee of the event
- MENDEL 2006 – 12<sup>th</sup> International Conference on Soft Computing, Brno, Czech Republic – V. Kvasnička, J. Pospíchal: members of programme committee
- SCCG 2006 – Spring Conference on Computer Graphics, Častá-Papiernicka Centre, Slovakia – M. Šperka: member of programme committee
- CESC 2006 – Central European Seminar on Computer Graphics, Častá-Papiernicka Centre, Slovakia – M. Šperka: member of programme committee

- 
- WEBIST 2006 – 2<sup>nd</sup> International Conference on Web Information Systems, Setúbal, Portugal – M. Šperka: member of programme committee
  - VU 2006 – 7<sup>th</sup> International Conference Virtual University, Bratislava, Slovakia – M. Šperka: member of programme committee
  - Organisation of Artificial Intelligence Seminar  
[www.fiit.stuba.sk/~kvasnicka/Seminar\\_of\\_AI](http://www.fiit.stuba.sk/~kvasnicka/Seminar_of_AI)
  - Participation in a grant #3/3135/05 (KEGA - Cultural and Educational Grant Agency of the Ministry of Education) New forms of university study in Artificial Intelligence in Slovak Republic, in 1/2005 - 12/2007, main investigator – P. Šinčák, FEI TU Košice, investigator from FIIT STU – V. Kvasnička
  - Participation in a grant # 3/3253/05 (KEGA - Cultural and Educational Grant Agency of the Ministry of Education) Art forms in communication design, in 3/2005 - 12/2007, main investigator Ľ. Horník, investigator from FIIT STU – M. Šperka



---

---

## 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 and computing, 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),
- Computer Systems and Networks (master degree),
- Computer Systems and Networks (doctoral degree).

The institute has been active and successful in research and reflects in research the current development of computer engineering in the world. Our research is funded by grants from the Slovak Research Grant Agency.

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

Milan Kolesár, Professor

### Deputy Director

Ladislav Hudec, Assoc. Professor

### Administrative Department

Katarína Pribišová

### Teaching Staff

Pavel Čičák, Assoc. Professor

Boris Dado

Jana Flochová, PhD.

Norbert Frištacký, Professor (part time), deceased

Elena Gramatová, Assoc. Professor (part time)

Igor Grellneth, PhD.

Pavol Horváth, Professor

Ján Hudec

Ladislav Hudec, Assoc. Professor

Katarína Jelemenská, PhD.

Milan Kolesár, Professor

Margaréta Kotočová, Assoc. Professor

Tibor Krajčovič, Assoc. Professor

Dušan Malina

Elena Tomalová

### Researchers

Adrian Bagala

Dušan Bernát

Jamal Hasan, PhD.

Daniela Kotmanová

### PhD Students

Roland Bott

Hossam El-Ddin M. Hussin

Timotej Török

Michal Zimen

## 8.2 Teaching

### Undergraduate Study (Bc.)

Course	Semester	Credits	Lecturer
Computer Architecture	Spring	6	M. Kolesár
Computer Application Methods	Autumn	6	P. Čičák
Computer Networks II	Spring	6	I.Grellneth
Computer Networks I	Autumn	6	M. Kotočová
Engineering Methods	Autumn	4	P.Čičák

Course	Semester	Credits	Lecturer
Final Bachelor Project I-II	Autumn Spring	3-9	M.Kolesár
Machine and System Level Programming	Autumn	5	P. Čičák
Microcomputers	Spring	6	T. Krajčovič
Logic Circuits	Autumn	6	M. Kolesár
Peripheral Devices	Autumn	4	P. Horváth
Programmable Logic	Spring	6	M. Kolesár
Specification and Description Languages	Autumn	6	K. Jelemenská

### Master Study (Ing.)

Course	Semester	Credits	Lecturer
Communication Services and Networks	Spring	5	M.Kotočová
Computer Architecture II	Autumn	4	L. Hudec
Computing Systems Security	Spring	6	L. Hudec
Diagnostics and Reliability	Spring	5	E.Gramatová
Digital Systems Design	Spring	5	K.Jelemenská
Digital Systems Testing	Autumn	5	E. Gramatová
Diploma Project I-III (Computer Systems and Networks)	Autumn Spring	4-10-21	M.Kolesár
Embedded Systems	Spring	5	T.Krajčovič
Internet Security	Spring	5	L.Hudec
Parallel Processing	Spring	5	D. Bernát
Specification and Description Languages	Autumn	6	K. Jelemenská
Team Project I-II (Computer Systems and Networks)	Autumn Spring	6-6	J.Hudec

## 8.3 Theses

### Bachelor (Bc.) Theses

- Abaffy, Jaroslav: *Instruments for support of administration of road meteorological stations*. May 2006. Supervisor: P. Čičák
- Adamko, Lukáš: *Security architecture of computers' systems*. May 2006. Supervisor: J. Hasan
- Angelovič, Stanislav: *Generator of target files for memory programming*. May 2006. Supervisor: T. Krajčovič
- Bachtík, Oliver: *Security mechanisms of grid computing using web interface*. May 2006. Supervisor: A. Bagala
- Bebej, Stanislav: *Boolean functions' minimisation*. May 2006. Supervisor: E. Tomalová

- Božoňová, Zuzana: *Program system for creation of ordered binary decision diagrams*. May 2006. Supervisor: D. Kotmanová
- Chovanec, Marián: *Some tasks of routing in computer networks*. May 2006. Supervisor: M. Kotočová
- Dobai, Roland: *Experimental microcomputer*. May 2006. Supervisor: T. Krajčovič
- Fiala, Michal: *Design and implementation of program system for instruction pipeline graphic visualization*. May 2006. Supervisor: J. Hudec
- Fillo, Peter: *Monitoring of user processes*. May 2006. Supervisor: D. Bernát
- Gregor, Michal: *Knowledge testing modul*. May 2006. Supervisor: B. Dado
- Haulik, Matej: *Universal interrupt generator*. May 2006. Supervisor: T. Krajčovič
- Heriban, Luboš: *Data Viewing in Computer – Demonstration and Education System*. May 2006. Supervisor: E. Tomalová
- Hlinka, Peter: *STP - Spanning Tree Protocol 802.1D – visualization on computer*. May 2006. Supervisor: I. Grellneth
- Hovanec, Pavol: *Generator of configurations for Cisco routers*. May 2006. Supervisor: B. Dado
- Hubatý, Tomáš: *Computer data representation education system*. May 2006. Supervisor: E. Tomalová
- Hudák, Rastislav: *Distributed computing*. May 2006. Supervisor: M. Kotočová
- Hvizdák, Bohuslav: *Configurations generator of Cisco routers*. May 2006. Supervisor: B. Dado
- Kočár, Marek: *The design and implementation of a algorithm for functional test generator for VLSI circuits*. May 2006. Supervisor: J. Hudec
- Krištofik, Jakub: *Monitoring of the operating system status*. May 2006. Supervisor: D. Bernát
- Kropáček, Miroslav: *Software Execution Time Estimation*. May 2006. Supervisor: T. Török
- Kvasnička, Martin: *Data representation in computer*. May 2006. Supervisor: E. Tomalová
- Majerník, Filip: *Implementation of security mechanisms in a system for remote access to the computer's hardware*. May 2006. Supervisor: D. Bernát
- Makový, Michal: *Storage information system*. May 2006. Supervisor: D. Malina
- Makýš, Miroslav: *Plan study of client authentication through Internet*. May 2006. Supervisor: I. Grellneth
- Mesjar, Peter: *Supporting the education in Computer networks*. May 2006. Supervisor: I. Grellneth
- Mikula, Michal: *Software support for education computer networks*. May 2006. Supervisor: D. Malina
- Mrva, Ivan: *Some special routing tasks in computer networks*. May 2006. Supervisor: M. Kotočová



- 
- Nagy, Benedikt: *Simulator of a Computer on Interregister Level*. May 2006. Supervisor: E. Tomalová
  - Novák, Michal: *Experimental microcomputer EMP386EX*. May 2006. Supervisor: T. Krajčovič
  - Novická, Lucia: *HTML tuition program – how the data are represented in a PC*. May 2006. Supervisor: E. Tomalová
  - Ondrovič, Michal: *Testing the security weaknesses of computer networks*. May 2006. Supervisor: L. Hudec
  - Ondruška, Ján: *System for animation of human skeleton walking*. May 2006. Supervisor: M. Šperka
  - Osvald, Drahomír: *Monitoring Unit for Digital Systems*. May 2006. Supervisor: T. Krajčovič
  - Palkovič, Martin: *Automatic design of combinational logical circuits using MSI integrated circuits*. May 2006. Supervisor: M. Kolesár
  - Petráš, Juraj: *Visualization of VHDL description*. May 2006. Supervisor: K. Jelemenská
  - Pohronská, Mária: *Program system for microprocessor-based control unit design*. May 2006. Supervisor: P. Čičák
  - Pristach, Juraj: *Distrbuted computes*. May 2006. Supervisor: M. Kotočová
  - Rodák, Roman: *Demonstration examples of network communication*. May 2006. Supervisor: M. Kotočová
  - Schwandner, Tomáš: *IPv6 – theory and practice*. May 2006. Supervisor: I. Grellneth
  - Schwartz, Richard: *Design and implementation of the system for selected operations of computer memory subsystem graphical visualization*. May 2006. Supervisor: J. Hudec
  - Soviš, Pavol: *Computer networks security holes testing*. May 2006. Supervisor: L. Hudec
  - Staňo, Miroslav: *Testing the security weaknesses of computer networks*. May 2006. Supervisor: L. Hudec
  - Szabó, Matej: *Application support for learning of computer networks*. May 2006. Supervisor: D. Malina
  - Szabó, Štefan: *Demonstration examples of network communication*. May 2006. Supervisor: M. Kotočová
  - Szeliga, Branislav: *Program support for education of data representation in computers*. May 2006. Supervisor: E. Tomalová
  - Tlacháč, Viktor: *Experimental Microcomputer EMP386EX*. May 2006. Supervisor: T. Krajčovič
  - Tylka, Peter: *Implementation of security mechanisms in system of remote hardware access*. May 2006. Supervisor: D. Bernát

- Uherčík, Matúš: *Automatic design of logical combination circuit with integration circuits MSI*. May 2006. Supervisor: M. Kolesár
- Velecký, Michal: *Automatic design of logical combination circuit with one output of integration circuits SSI*. May 2006. Supervisor: M. Kolesár
- Vesel, Marek: *Control of process creation*. May 2006. Supervisor: D. Bernát
- Vrábel, Michal: *Generator of configurations for Cisco switches*. May 2006. Supervisor: B. Dado
- Zubal, Michal: *24-input interrupt card for PC*. May 2006. Supervisor: T. Krajčovič
- Zubčák, Peter: *STP – Spanning Tree Protocol 802.1D – visualisation on the PC*. May 2006. Supervisor: I. Grellneth

#### **Master (Ing.) Theses**

- Ambruš, Rastislav: *Optimal state encoding of synchronous sequential circuits*. May 2006. Supervisor: E. Tomalová
- Aradský, Matej: *Computer assisted simulation of selected measurements on electrical machines*. May 2006. Supervisor: D. Malina
- Backo, Tomáš: *Software support of control unit development*. May 2006. Supervisor: P. Čičák
- Balaš, Vladimír: *Software platform for distance learning of digital system testability and reliability*. May 2006. Supervisor: E. Gramatová
- Bauer, Helmut: *Design of security architecture of computer systems*. December 2006. Supervisor: J. Hasan
- Bednár, Peter: *Software support for computer-aided education of computer network designing*. May 2006. Supervisor: P. Čičák
- Blesák, Martin: *Certificate authority*. December 2006. Supervisor: L. Hudec
- Burák, Jozef: *Analysis and evaluation of network communication*. May 2006. Supervisor: B. Dado
- Hamar, Jozef: *Non standard alternatives of communication in TCP/IP networks*. May 2006. Supervisor: D. Bernát
- Hornáček, Martin: *New trends in STP, protocol ERP and its visualization*. December 2006. Supervisor: I. Grellneth
- Hreňák, Martin: *Software support of selected measurements of electric machines*. May 2006. Supervisor: D. Malina
- Jánoš, Michal: *Defects in implementation of combination logic circuits*. December 2006. Supervisor: E. Tomalová
- Khandl, Peter: *Automatic system for integration of digital blocks in system on chip design*. May 2006. Supervisor: E. Gramatová
- Komara, Martin: *Global optimization using quantum computing*. December 2006. Supervisor: V. Kvasnička

- Koprla, Marek: *Virtual set of logical circuit with normal structure*. May 2006. Supervisor: M. Kolesár
- Kovaľ, Ján: *Operating system for digital signal procesor*. May 2006. Supervisor: T. Török
- Korček, Roman: *Measuring and evaluating quality of service parameters in TCP/IP networks*. December 2006. Supervisor: M. Kotočová
- Kubik, Michal: *Remote communication with measurement workplace*. May 2006. Supervisor: O. Čičáková
- Kytka, Jozef: *E-learning modules for Specifikacne a opisne jazyky*. December 2006. Supervisor: K. Jelemenská
- Močol, Martin: *Electronic registry*. December 2006. Supervisor: L. Hudec
- Novák, Štefan: *Extension of router configuration education system*. December 2006. Supervisor: K. Jelemenská
- Orfánus, Dalimír: *Design and implementation of program support for modeling and verification of embedded systems in UML*. May 2006. Supervisor: M. Kardoš
- Pullmann, Peter: *Providing IT service and technology through the internet and intranet..* May 2006. Supervisor: D. Malina
- Skočík, Pavol: *Virtual kit of gate structured logical circuits*. May 2006. Supervisor: M. Kolesár
- Smiščík, Róbert: *System for teaching concurrent diagnostic methods of digital systems*. December 2006. Supervisor: E. Gramatová
- Smolek, Tomáš: *Modelling and implementing knowledge of agent in multiagent environment*. May 2006. Supervisor: D. Kotmanová
- Šille, Erik: *Utilization of routers*. May 2006. Supervisor: J. Hasan
- Škrib, Radomír: *Security vulnerabilities testing in computer networks*. May 2006. Supervisor: L. Hudec
- Štuller, Peter: *Modification of measurement system with PC*. December 2006. Supervisor: R. Kinder

### Doctoral (PhD.) Theses

*Student name:* Martin Kardoš  
*Degree program:* Computer devices and systems  
*Thesis title:* Automated formal verification for UML-based model driven design of embedded systems  
*Supervisor:* Norbert Frištacký, Professor  
*Defended on:* February 17, 2006  
*Annotation:* The thesis aims at providing an approach for the automated formal verification of embedded systems modeled and designed using the Unified Modeling Language (UML). The focus is on the verification of platform independent UML models against functional properties expressed in the form of temporal logic formulae. Concretely, a novel verification approach is developed which supports fully automated verification of UML models expressed in the Verifiable UML,

a defined subset of UML 2.0 that contains diagrams to model the main aspects of an embedded system such as the architecture, behavior and the communication. To formalize the semantics of the Verifiable UML, the approach employs the formal method of Abstract State Machines (ASMs) and the Abstract State Machine Language (AsmL). As the verification method, the model checking technique is adopted and tailored for model checking of AsmL specifications, thus facilitating the verification of UML semantic models expressed in AsmL. The overall verification approach is evaluated on the Material Flow System case study that models distributed embedded software to control the manufacturing process of an assembly line.

<i>Student name:</i>	Ladislav Huraj
<i>Degree program:</i>	Applied informatics
<i>Thesis title:</i>	Implanted chain certificate in distributed environment
<i>Supervisor:</i>	Ladislav Hudec, Assoc. Professor
<i>Defended on:</i>	October 6, 2006
<i>Annotation:</i>	In ad hoc networks and other highly distributed and decentralized environments, authorization certificates and chain of them are used to control access. Moreover, it is possible to delegate rights listed in the certificate to other users. However, the size of these chains can become too long to be usable. The implanted chain certificate improves the time complexity of the verification of certificate chains. An implanted chain certificate (IChC) can be imagined as a certificate for a whole chain of certificates. The verification of IChC uses only a constant amount of cryptographic operations; therefore it is computationally more efficient when compared with the classical verification of the chain. In the dissertation, we present the IChC approach and focus on performance improvements of implanted chain certificates. Not only for long but even for very short chains – containing only four certificates – the IChC approach is much more efficient than the classical verification approach. In the dissertation we also present ubiquitous services of Implanted Chain Certificates Scheme in the network by voucher system and we provide some insights into the configuration of such security services in ad hoc networks.

## 8.4 Research Laboratories

### Computer Networks Laboratory

<i>Head:</i>	P. Čičák
<i>Contact:</i>	pavel.cicak@fiit.stuba.sk
<i>Description:</i>	The research and teaching laboratory is predefined for teaching computer networks to undergraduates and graduates in the study programme Computer 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. The laboratory is equipped with modern network components and respective software tools.

### Embedded Systems Laboratory

*Head:* T. Krajčovič  
*Contact:* tibor.krajcovic@fiit.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 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 (logic analyzer, in-circuit emulators, Bluetooth development kits, Pentium II based embedded system development kit) necessary for practical teaching.

### VLSI Design Laboratory

*Head:* J. Hudec  
*Contact:* jan.hudec@fiit.stuba.sk  
*Description:* The research and teaching laboratory is predefined for teaching of programmable logic devices in graduate study of Computer systems and networks, branch 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 (XACT for XILINX, SYNOPSIS) for programmable circuits PLD and FPGA practical teaching.

## 8.5 Research projects

### Grid Computing Systems and its Components (VEGA 1/3104/06)

*Project leader:* L. Hudec  
*Members:* A. Bagala, D. Bernát, R. Bott, P. Čičák, B. Dado, I. Grellneth, J. Hasan, El-Ddin Hossam Hussin, J. Hudec, K. Jelemenská, M. Kolesár, D. Kotmanová, M. Kotočová, T. Krajčovič, D. Malina, E. Tomalová, T. Török, M. Zimen  
*Supported by:* Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences  
*Duration:* January 2006 – December 2008  
*Description:* Research aims of this project are the following: design and implementation an extension to the operating system kernel providing checkpoint and restore mechanism to the processes (numeric extensive calculations) of operating system; design and implementation of the distributed schedule algorithm that provides a node load balance in cluster based on neighbour node state knowledge; cluster model development as random graph; node and communication links failure

analysis that influences communication in network (ability of message to reach the destination node) in dependence on link failure and network topology; the RBAC security model application in grid environment; design and implementation of new security model in available grid environment; methodology development and implementation for scheduling steps of synthesis design models; development the search for design flows enabling smart design of digital systems; development of methods, design of algorithms and improvement the development methods for embedded systems testing as a part of VLSI systems testing at the functional level.

## 8.6 Publications

### Journals

- MOSTAFA, H., ČIČÁK, P.: Early Registration: Criterion to Improve Communication-Inter Agents in Mobil-IP Protocol. In: *International Journal of Information Technology*, World Enformatika Society, Vol. 3, No. 3 (2006) 173-179.
- MOSTAFA, H., ČIČÁK, P.: Packet Losses interpretation in Mobile Internet. In: *Transactions on Engineering, Computing and Technology*, Canakkale, World Enformatika Society, Vol. 12 (2006) 194-197.
- MOSTAFA, H., ČIČÁK, P.: Performance Simulation of a Mobile-IP Extension for Optimized Roaming Service. In: *Acta Electrotechnica et Informatica*, Vol. 6, No. 1 (2006), 11-19.
- MOSTAFA, H., ČIČÁK, P.: PetriNets Manipulation to Reduce Roaming Duration: Criterion to Improve Handoff Management. In: *Transactions on Engineering, Computing and Technology*, Canakkale, World Enformatika Society, Vol. 12 (2006) 182-187.

### International Conferences

- BERNÁT, D.: Success of Broadcast in Random Star-like Networks. In: *Aplimat 2006: 5<sup>th</sup> International Conference*, Slovak University of Technology (2006) 569-574.
- FLOCHOVÁ, J., RADA KOVIČ, F., JOMBÍK, M.: PNDesigner a Tool designed for model based diagnosis and supervisory control of DES. In: *WODES, Workshop on discrete event system*, Ann Arbor, USA (2006) 471-472.
- FLOCHOVÁ, J., JIROVEANU, G., BOEL, R.: Model-Based Diagnosis of Discrete Event Systems. In: *ITI 2006 – 28<sup>th</sup> International Conference on Information Technology Interfaces*, Cavtat/Dubrovnik (2006) 519-524.
- FLOCHOVÁ, J., MIKLOVIČOVÁ, E., UČNÍK, M.: Model of steam boiler drum technology and data transmission into scad/HMI systems. In: *Control of Power and Heating Systems 2006, 7<sup>th</sup> International Conference*, Zlin (2006). p.27.
- KINDER, R., HUDEC, L., CHMEL, T., HULÉNYI, L., KURUC, M.: An Automatic Measurement System with PCIV Profiling for Characterization of Semiconductors. In: *EDS'06, Electronic Devices and Systems*, IMAPS CS International Conference 2006, Brno, (2006) 131-134.
- MOSTAFA, H., ČIČÁK, P.: Hands on Roaming Duration. Petri-Nets Modeling of a Wireless Mobile-IP Procedure in Cisco Platform. In: *ICNS 2006 – International Confer-*

*ence on Networking and Services*, Silicon Valley, California, IEEE Computer Society (2006) 6 p. CD-ROM.

### **Local and National Conferences**

BAGALA, A.: Authentication and Credential Management in Grid. In: *IIT.SRC 2006 – Student Research Conference 2006*, Slovak University of Technology, Supervisor: Hudec, L. (2006) 311-317.

BERNÁT, D., NEHÉZ, M.: Communication networks and phase transitions. In: *Cognition and artificial life VI*, Třešť, Silesian University Press (2006) 41-46 (in Slovak).

## **8.7 Cooperation**

### **Cooperation in Slovakia**

- Institute of Informatics, Slovak Academy of Sciences, Bratislava
- Slovak University of Technology in Bratislava, Faculty of Electrical Engineering and Information Technology
- Technical University of Košice, Faculty of Electrical Engineering and Informatics
- Matej Bel University in Banská Bystrica, Faculty of Natural Sciences
- University of Žilina, Faculty of Management Science and Informatics, Faculty of Electrical Engineering
- Abonus Ltd.
- Asset Ltd.
- GTEC Slovakia Ltd.
- Datalan Ltd.
- Hewlett-Packard Slovakia Ltd.
- IBM Slovakia Ltd.
- Infostat Bratislava
- Oracle Slovakia Ltd.
- Molpir Ltd.
- Siemens Ltd.
- Spinet Ltd.
- Tempest Ltd.
- Tronet Ltd.

### **International Cooperation**

- Czech Technical University in Prague, Faculty of Electrical Engineering, Department of Computers, Czech Republic
- Brno University of Technology, Faculty of Information Technologies, Czech Republic

- University of West Bohemia in Pilsen, Faculty of Applied Science, Department of Computer Science and Engineering, Czech Republic
- Technical University of Sofia, Faculty of Computer Systems and Control, Bulgaria
- INRIA, Grenoble, France
- University of Maribor, Slovenia
- Heinz Nixdorf Institut, Universität of Paderborn, Germany
- Institute of Microelectronic Systems, Department of Electrical Engineering and Information Technology, Darmstadt University of Technology, Germany

#### **Fraunhofer Institute for Integrated Circuits, Design Automation Division, Dresden, Germany**

##### **Visits of Staff Members**

- *J. Flochová*: Tallin University of Technology, Institut of Cybernetics, Estonia, January 23-February 20, 2006 and March 23 – April 20, 2006
- *Hossama El Ddin M. Hussin*: International Conference on Computer Science ICCS-2006, Vienna, Austria, March 29-31, 2006
- *J. Hudec*: The IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems DDECS 2006, Prague, Czech Republic, April 19-21, 2006
- *J. Flochová*: University of Michigan, Ann Arbor, USA, April 23 – May 14, 2006
- *P. Čičák*: Cisco Expo 2006, Network RCNA Academy, Prague, Czech Republic, April 26-27, 2006
- *D. Bernát*: Cognition and Artificial Life VI, Třešť, Czech Republic, May 28 – June 1, 2006
- *J. Flochová*: 28<sup>th</sup> International Conference Information Technology Interfaces ITI 2006, Dubrovnik, Croatia, June 17-26, 2006
- *L. Hudec*: 165. meeting of the COST Committee of Senior Officials, Tallin, Estonia, June 25-28, 2006

## **8.8 Membership in Professional Organisations and Societies**

### **Slovak Professional Organisations and Societies**

#### *Pavel Čičák*

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

#### *Norbert Frištacký*

- Slovak Academic Society, member (member, since 1997)
- Society for Computer Science, member (member, since 1991)
- Society for Cybernetics and Informatics (member, since 1991)

#### *Jamal Hasan*

- Slovak Nuclear Society, (member, since 2003)



*Ladislav Hudec*

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

*Milan Kolesár*

- Slovak Centre of the IEE (member, since 1997)
- Slovak Society for Computer Science (member, since 1996)

**International Professional Organisations and Societies***Pavel Čičák*

- Institute of Electrical Engineers, IEE (fellow, since 2000)
- Engineering Council (Chartered Engineer, since 2000)

*Jana Flochová*

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

*Norbert Frištacký*

- Institute of Electrical and Electronic Engineers, IEEE (member, since 1991)
- IEEE Computer Society (member, since 1991), Computer Pioneer Award (1996)
- IFIP (Technical Committee TC-10: Computer Systems Technology member, since 1992; Working group TC10-5: Design and Engineering of Electronic Systems member, since 1993)

*Ján Hudec*

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

*Ladislav Hudec*

- Information Systems Audit and Control Association (member, since 1998)

*Tibor Krajčovič*

- Slovak Commission for UNESCO. Informatics, Information and Communication Technologies (member, since 2005)

**8.9 Other Activities**

- Computing and Informatics (CAI) – N. Frištacký: member of the Board of Editors (since 1979), member of the Board of Editors Executive Committee (since 2000)
- National COST Coordinator, L. Hudec (since 1993)
- Member of the COST Senior Officials Committee, L. Hudec (since 1993)
- Data Security 2006 Conference, April 21, Bratislava – L. Hudec: chair of programme committee
- International Journal of Information Technology IJIT, World Enformatika – Hos-sam el-ddin M. Hussin: member of editorial board

- International Journal of Information Technology IJCS, World Enformatika – Hossam el-ddin M. Hussin: member of editorial board
- International Conference on Information Technology ICIT, World Enformatika Society - Hossam el-ddin M. Hussin: member of programme committee
- International Conference on Computer Science ICCS, World Enformatika Society – Hossam el-ddin M. Hussin: member of programme committee
- International Conference on Communication Technology ICCT, World Enformatika Society – Hossam el-ddin M. Hussin: member of programme committee
- Spektrum, University News Periodical – M. Kolesár: member of the editorial board (since 2003)
- Kolesár, M. – review of book: Logic Systems. (Galanová, J., Kaprálik, P., Polakovič, M., Vydavateľstvo STU, Bratislava, 2006, 185 p.)

---

---

## 9 Institute of Informatics and Software Engineering

---

---

**E-mail:** uisi@fiit.stuba.sk  
**Web:** uisi.fiit.stuba.sk  
**Tel:** + 421 2 654 114 61  
**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),
- Artificial Intelligence (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.

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

### Teaching Staff

Mária Bieliková, Professor  
Anna Bou Ezzeddine  
Lucia Galbavá  
Marta Gnipová (part time)  
Daniela Gregušová, Assoc. Professor (part time)  
Ľubica Hanulová (part time)  
Zuzana Husárová (part time)  
Daniela Chudá, PhD.  
Ivan Kapustík  
Štefan Kimlička, Professor (part time), deceased  
Dagmar Komorová (part time)  
Gabriela Kosková, PhD.  
Jana Minárová, Assoc. Professor (part time)  
Marián Mlynarovič, PhD. (part time)  
Vladimír Mlynarovič, Assoc. Professor (part time)  
Ľudovít Molnár, Professor  
Pavol Návrat, Professor  
Martin Nehéz (part time)

Jozef Papula, Professor (part time)  
 Ivan Polášek, PhD. (part time)  
 Ivan Polický  
 Anna Považanová  
 Viera Rozinajová, PhD.  
 Tomáš Seidmann, PhD., visiting Assoc. Professor (part time)  
 Jiří Šafařík, Professor (part time)  
 Lubor Šešera, PhD., visiting Assoc. Professor (part time)  
 Valéria Šimáková (part time)  
 Valentino Vranić, PhD.  
 Michal Winczer, PhD. (part time)

#### Researchers

Roman Filkorn (part time)  
 Vladimír Grlický  
 Michal Barla (part time)  
 Peter Bartalos (part time)  
 Vojtech Imrecze (part time)  
 Juraj Malečka (part time)  
 Marek Tomša (part time)  
 Michal Tvarožek (part time)  
 Richard Veselý (part time)  
 Peter Vojtek (part time)  
 Oto Vozár (part time)

#### External Teachers

Naďa Andrejčíková  
 Imrich Lenharčík  
 Danica Šoltéssová, PhD.

#### PhD Students:

Anton Andrejko  
 György Frivolt  
 Jaroslav Jakubík  
 Martin Kiselkov  
 Matej Košík  
 Marián Lekavý  
 Ján Máté  
 Martin Šechný

## 9.2 Teaching

### Undergraduate Study (Bc.)

Course	Semester	Credits	Lecturer
Algorithms and Programming	Autumn	6	J. Minárová
Artificial Intelligence	Spring	6	P. Návrat
Communication in Culture History	Spring	3	D. Šoltéssová

Course	Semester	Credits	Lecturer
Construction of Effective Algorithms	Spring	6	M. Winczer
Data Structures and Algorithms	Autumn	6	P. Návrát
Entrepreneurship and Management	Autumn	5	J. Papula
Final Bachelor Project I-II	Autumn Spring	3-9	P. Návrát
Functional and Logic Programming	Autumn	6	M. Bieliková
Information and Communication Technologies Law	Spring	5	D. Gregušová
Managerial Economy	Autumn	5	V. Mlynarovič
Object-Oriented Programming	Spring	6	V. Vranič
Program Development for Java 2 Platform	Spring	6	I. Lenharčík
Programming Languages and Compilation	Autumn	6	E. Molnár
Principles of Information Systems	Autumn	5	V. Rozinajová
Principles of Software Engineering	Spring	7	M. Bieliková
Programming Seminar	Autumn	0	G. Kosková
Procedural Programming	Autumn	6	G. Kosková
Specifications Methods and Tools	Spring	6	E. Molnár
Software Systems Development	Spring	3	M. Bieliková
Theoretical Foundations of Informatics	Spring	6	M. Nehéz

### Master Study (Ing.)

Course	Semester	Credits	Lecturer
Architecture of Information Systems	Autumn	4	M. Mlynarovič
Architecture of Software Systems	Autumn	4	P. Návrát
Architecture and Design Patterns for Program Information Systems	Spring	5	L. Šešera
Aspect-Oriented Software Development	Autumn	5	V. Vranič
Design of Compilers	Autumn	6	E. Molnár
Diploma Project I–III (Software Engineering, Information Systems)	Autumn Spring	4-10-21	P. Návrát
Distributed Operating Systems	Autumn	5	T. Seidmann
History of Design	Autumn	5	D. Šoltéssová
Industry Project	Spring	5	M. Bieliková
Knowledge Discovery	Autumn	5	G. Kosková
Knowledge-Based Systems	Autumn	5	I. Kapustík
Law – Selected Problems	Spring	5	D. Gregušová
Management in Software Engineering	Spring	6	M. Bieliková

Course	Semester	Credits	Lecturer
Object-Oriented Analysis and Design	Autumn	5	I. Polášek
Management in Software Engineering	Spring	5	M. Bieliková
Principles of Web Engineering	Autumn	5	M. Bieliková
Quality of Program and Information Systems	Spring	4	I. Lenharčík
Research of Information Systems	Autumn	1	P. Návrat
Research of Software Systems	Autumn	1	M. Bieliková
Team Software System Development I-II	Autumn Spring	6-6	M. Bieliková
Team Information System Development I-II	Autumn Spring	6-6	M. Bieliková

### 9.3 Theses

#### Bachelor (Bc.) Theses

- Bachratý, Ondrej: *Interactive timetable for mobile devices*. May 2006. Supervisor: V. Marko
- Bielčík, Tomáš: *Information portal of subject*. May 2006. Supervisor: L. Hanulová
- Blaho, Mário: *Object relational mappers for C++ language*. May 2006. Supervisor: J. Jakubík
- Borka, Tibor: *Simulated soccer — analysis of players behaviour*. May 2006. Supervisor: M. Lekavý
- Bubanský, Michal: *Creation of the web application for evidence of department publication activity*. May 2006. Supervisor: V. Rozinajová
- Cichý, Martin: *Object-relational mappers for Java language*. May 2006. Supervisor: J. Jakubík
- Dančík, Ondrej: *Automated processing of information extracted from a web site*. May 2006. Supervisor: V. Rozinajová
- Dobiš, Michal: *CSIDC 2006*. May 2006. Supervisor: M. Bieliková
- Ďurajka, František: *Web content management sand their appropriate application*. May 2006. Supervisor: J. Kuruc
- Ďurfina, Michal: *Visual design support of pipes and filters architectural styles*. May 2006. Supervisor: V. Marko
- Eliáš, Juraj: *A system for document submission through Internet*. May 2006. Supervisor: A. Považanová
- Fáber, Rudolf: *Object-relational mappers for C# language*. May 2006. Supervisor: J. Jakubík
- Frlička, Andrej: *Subject information portal*. May 2006. Supervisor: L. Hanulová
- Grežďo, Michal: *A tool for GIS object transformation support*. May 2006. Supervisor: I. Kapustík

- Hlaváč, Ján: *The travelling salesman problem in practice*. May 2006. Supervisor: A. Bou Ezzeddine
- Hlaváček, Vladimír: *Application for course creation*. May 2006. Supervisor: A. Považanová
- Hoang, Xuan Linh: *Implementation of algorithms to find out the Hamiltonian circle in graph*. May 2006. Supervisor: I. Polický
- Hric, Ján: *Interpreter of Lambda Expressions*. May 2006. Supervisor: M. Košík
- Ivanka, Peter: *Adaptive archiving of information*. May 2006. Supervisor: A. Považanová
- Jajcaj, Michal: *Adaptive information archiving*. May 2006. Supervisor: A. Považanová
- Janičkovič, Peter: *Synchronization*. May 2006. Supervisor: V. Marko
- Jánoš, Igor: *Image processing*. May 2006. Supervisor: A. Považanová
- Kaleta, Dávid: *Software as the result of technical creative mentation*. May 2006. Supervisor: P. Návrat
- Kallo, Miroslav: *Creation of bibliography references schemes and styles for LaTeX typographic system*. May 2006. Supervisor: V. Grlický
- Kažimír, Roman: *Utilization of heterogenous players features*. May 2006. Supervisor: I. Kapustík
- Kohaut, Peter: *Computing machines simulator*. May 2006. Supervisor: I. Polický
- Krausko, Ján: *Searching in the Semantic Web environment*. May 2006. Supervisor: A. Andrejko
- Kurt'ák, Michal: *Design patterns catalog*. May 2006. Supervisor: P. Návrat
- Kuzár, Tomáš: *Lambda-expressions interpreter*. May 2006. Supervisor: M. Košík
- Lajoš, Lubomír: *Hypertext connection stochastic modelling*. May 2006. Supervisor: G. Kosková
- Lamoš, Dušan: *Modelling and solving of allocation problems*. May 2006. Supervisor: A. Bou Ezzeddine
- Lenčucha, Ladislav: *Mining user characteristics in texts*. May 2006. Supervisor: M. Bieliková
- Legěň, Miroslav: *UML diagrams in TeX enviroment*. May 2006. Supervisor: M. Navarčík
- Nociar, Peter: *Simulated robotic football — player behaviour analyse*. May 2006. Supervisor: M. Lekavý
- Nágl, Martin: *Student Portal*. May 2006. Supervisor: V. Marko
- Pazdera, Ľuboš: *Expert system*. May 2006. Supervisor: M. Košík
- Petriščák, Martin: *Simulated robot soccer — coach*. May 2006. Supervisor: M. Lekavý
- Pok, Ondrej: *Drawing of large graphs*. May 2006. Supervisor: G. Frivolt



- Rado, Ladislav: *Using latent class probabilistic model for organizing documents*. May 2006. Supervisor: G. Kosková
- Rendek, Ladislav: *Application stochastic models with hidden classes to document organisation*. May 2006. Supervisor: G. Kosková
- Sabó, Tomáš: *Editor of shared source-code files*. May 2006. Supervisor: V. Šimáková
- Salaj, Marian: *Simulated robotic soccer – high level skills*. May 2006. Supervisor: M. Lekavý
- Samiec, Michal: *Evaluation of students' knowledge using adaptive web-based system*. May 2006. Supervisor: M. Bieliková
- Staník, Juraj: *Object relational mapping tools for JAVA*. May 2006. Supervisor: J. Jakubík
- Slezák, Jozef: *Estimating software quality*. May 2006. Supervisor: R. Filkorn
- Šarmír, Ján: *Supporting tool for changes in source materials for virtual*. May 2006. Supervisor: V. Šimáková
- Šimko, Marián: *Generating bibliographic references using DocBook markup language*. May 2006. Supervisor: V. Grlický
- Šimno, Peter: *Presentation of documents for semantic web*. May 2006. Supervisor: R. Filkorn
- Šimon, Lukáš: *Design patterns catalogue*. May 2006. Supervisor: P. Návrát
- Šimún, Michal: *Rules for adaptation of user model*. May 2006. Supervisor: A. Andrejko
- Šupina, Peter: *Collaborative source code editor*. May 2006. Supervisor: V. Šimáková
- Tomek, Peter: *A courses creation tool*. May 2006. Supervisor: A. Považanová
- Tomša, Marek: *CSIDC 2006*. May 2006. Supervisor: M. Bieliková
- Vallo, Mikuláš: *Application of heterogeneous players*. May 2006. Supervisor: I. Kapustík
- Veselý, Richard: *CSIDC 2006*. May 2006. Supervisor: M. Bieliková
- Vilina, Pavol: *Simulator of computational machinery*. May 2006. Supervisor: I. Polický

#### Master (Ing.) Theses

- Barla, Michal: *Interception of user's interests on the web*. December 2006. Supervisor: M. Bieliková
- Bartalos, Peter: *Representation of sparse graphs*. December 2006. Supervisor: M. Nehéz
- Belluš, Jaroslav: *Support of adaptive web-based presentation*. December 2006. Supervisor: J. Kuruc
- Dragúň, Pavol: *Source code generation from UML 2.0 diagrams*. December 2006. Supervisor: I. Polášek

- Ďurica, Andrej: *An alternate notation for processes of object structure transformation*. December 2006. Supervisor: I. Polášek
- Hinka, Martin: *The support of object oriented analysis and design*. May 2006. Supervisor: J. Minářová
- Horváth, Erik: *Acquiring and processing of research results from the web*. May 2006. Supervisor: V. Vranić
- Imrecze, Vojtech: *Searching for information on the Semantic Web*. May 2006. Supervisor: P. Návrat
- Jemala, Michal: *Visual browsing of RDF documents*. December 2006. Supervisor: M. Bieliková
- Kováčik, Martin: *Recommending web pages with interesting information using honey-bees*. December 2006. Supervisor: P. Návrat
- Kočíš, Ladislav: *A structured player for RoboCup-style simulated games*. December 2006. Supervisor: I. Kapustík
- Kročka, Lukáš: *Administration and publication of documents in the semantic web environment*. December 2006. Supervisor: L. Hanulová
- Lečko, Euboš: *Internet as a small world network*. May 2006. Supervisor: G. Frivolt
- Macháč, Matej: *Simulated robotic soccer — automated learning*. December 2006. Supervisor: M. Lekavý
- Malečka, Juraj: *Document retrieval using metadata*. December 2006. Supervisor: V. Rozinajová
- Matúšek, Tomáš: *Integration of information represented by ontology*. December 2006. Supervisor: V. Grlický
- Mažgut, Jakub: *The use of probabilistic models with latent variables to recommend information..* May 2006. Supervisor: G. Kosková
- Miština, Marián: *Recommendation via association rules*. December 2006. Supervisor: G. Kosková
- Molnár, Tomáš: *Design and implementation extension of IS web-based representation of cultural institution*. May 2006. Supervisor: V. Šimáková
- Moravčík, Michal: *Modeling of adaptive web systems*. May 2006. Supervisor: M. Bieliková
- Nagy, Peter: *Adaptation of presented information sequences in electronic courses considering human memory aspects*. May 2006. Supervisor: M. Bieliková
- Perec, Peter: *Information support of cultural heritage preservation processes with research prototyping*. December 2006. Supervisor: I. Kapustík
- Prikryl, Pavol: *Automated offline annotation of web pages*. December 2006. Supervisor: P. Návrat
- Salai, Miroslav: *Organizing knowledge in GIS objects*. May 2006. Supervisor: I. Kapustík

- Sivák, Peter: *Design patterns in object-relational mapping tools*. December 2006. Supervisor: J. Jakubík
- Solín, Rastislav: *Use of platforms for mobile agents*. May 2006. Supervisor: I. Kapustík
- Suchal, Ján: *Statistical hypertext modeling*. December 2006. Supervisor: G. Kosková
- Šefara, Michal: *Textbook sources editor*. December 2006. Supervisor: A. Považanová
- Štípek, Michal: *Presentation of information represented by ontology*. May 2006. Supervisor: V. Grlický
- Tvarožek, Michal: *Personalized navigation in an information space represented by an ontology*. December 2006. Supervisor: M. Bieliková
- Vojtek, Peter: *Identification of natural languages in text documents*. December 2006. Supervisor: V. Grlický
- Wagner, Jozef: *Simulated robotics soccer – team cooperation*. December 2006. Supervisor: M. Lekavý
- Židek, Peter: *Generating, processing, and recognition of digital curves*. December 2006. Supervisor: A. Považanová
- Žužo, Milan: *Futsal game simulation environment*. May 2006. Supervisor: I. Kapustík

### Doctoral (PhD.) Theses

*Student name:* Zoltán Fazekas  
*Degree program:* Program and Information Systems  
*Thesis title:* Improving Variability in Software Configuration by Separation of Concerns  
*Supervisor:* Pavol Návrát, Professor  
*Defended on:* October 10, 2006  
*Annotation:* Configuration management is a common way of handling variation between versions of a software product. Variation can be expressed among others in terms of concerns (e.g. features) the product addresses. As far as such concerns are represented by single modules, they can be easily combined to build new versions of the software product. However, tangled or scattered concerns are not that easy to manage. Aspect-oriented programming modularizes scattered concerns. But even if aspect-oriented programming became a widely-used paradigm, not all variants of a system could be identified with a subset of aspects. There are concerns, which can neither be encapsulated in modules nor in aspects. They can be perceived as code modifications rather than code fragments such as modules or aspects. We propose ICCM, a new versioning model, which represents such concerns as a collection of fine-grained deltas. In ICCM, versions are obtained by composing deltas specified in terms of the intended concerns. CHAT is a prototype versioning tool integrating ICCM into an existing software development environment. Experiments with CHAT showed a

significant reduction in the overall time needed to create new versions of a software product.

## 9.4 Research Laboratories

### Intelligent Systems Laboratory

*Head:* P. Návrat  
*Contact:* pavol.navrat@fiit.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

*Head:* M. Bielíková  
*Contact:* maria.bielikova@fiit.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 development 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

### Software System Models in Semantic Web Environment (VEGA 1/3102/06)

*Project leader:* P. Návrat  
*Members:* M. Bielíková, A. Bou Ezzeddine, R. Filkorn, I. Kapustík, G. Kosková, Ľ. Molnár, I. Polášek, I. Polický, V. Rozinajová, V. Vranič, A. Andrejko, G. Frivolt, V. Grlický, J. Jakubík, M. Košík, M. Lekavý  
*Supported by:* Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences  
*Duration:* January 2006 – December 2008  
*Description:* Project focuses on research in the area of models and patterns application, namely in architectonic, analytical and compositional patterns.

These models are used in software systems development. Their primary goal is intelligent providing, analysis, and presentation of information in distributed environment of the semantic web in particular. Intelligent processing of information in distributed and heterogeneous environment of the Internet needs the adaptation in open information environment. To do so, methods for knowledge, adaptation and navigation modelling are needed. As an essential part of web software systems development, project includes also modelling of distributed and varying sources of data and information. In this sense, it is appropriate to use statistic models for knowledge discovery of hidden patterns in the data and their application for ontology generation and searching for patterns in new ontologies design and descriptions of semantics in general.

**Theoretic and conceptual views of implementation of new functions into architectural heritage structure and their optimization with tourism as an example (VEGA 1/3300/06)**

- Project leader:* Faculty of Architecture, Slovak University of Technology  
(for FIIT: P. Návrat)
- Members:* I. Kapustík
- Supported by:* Scientific Grant Agency of the Ministry of Education of Slovak Republic and the Slovak Academy of Sciences
- Duration:* January 2006 – December 2008
- Description:* This project handles principally new model, which implements new functions into existing architectural heritage structure. Exploitation of cultural heritage (including architectural) for actual functions of present society is one of principal requirements modern monuments preservation formulated on international level. Concurrently, there must be fulfilled requirement that cultural heritage values are preserved. While monument preservation theory expects this relation works automatically, reality is different: process of new function implementation is intuitive, random, not respecting objective correlation associations. Model example of new function is tourism. Project initiates activation of unused capacity of mutually supporting correlation associations to reach bilaterally satisfied collaboration. Model respects partial features of different architectural heritage types in different environment.

**Modelling and Acquisition, Processing and Employing Knowledge about User Activities in the Internet Hyperspace (APVT-20-007104)**

- Project leader:* M. Bieliková
- Members:* A. Bou Ezzeddine, I. Kapustík, M. Lekavý, Ľ. Majtás, Ľ. Molnár, P. Návrat, V. Rozinajová, V. Vranić
- Supported by:* Slovak Research and Development Agency
- Duration:* January 2005 – December 2007
- Description:* The project solves the current problem area of improving efficiency of the information providing and processing in the Internet. The primary approach used in this project comes from the idea to consider specific properties, habits and needs of the Internet web service user. By creat-

ing a suitably defined and represented user model, a space will be opened for design of methods, which will enable a user to better (faster, more accurately...) access desired information. Inputs for user model creation are at one side a track of his individual activities in the Internet space (behavioural patterns, typical navigational destinations and sequences, etc.), while on the other side they are results of his social behaviour in the user community with similar interests (mutual recommendations, etc.). The model defined this way may be derived for an individual user from his previous activities in the Internet space.

**Research and Development of a Knowledge-Based System to Support Workflow Management in Organizations with Administrative Workflow Processes (APVT-51-024604)**

- Project leader:* Institute of Informatics, Slovak Academy of Sciences (for STU: P. Návrat)
- Members:* M. Bielíková, A. Bou Ezzeddine, R. Filkorn, V. Imrecze, I. Kapustík, M. Lekavý, Ľ. Majtás, Ľ. Molnár, V. Rozinajová, V. Vranič
- Supported by:* Slovak Research and Development Agency
- Duration:* January 2005 – December 2007
- Description:* The project is aimed at creation of the knowledge-based system for workflow support with administrative focus based on multiagent technologies with the application of the ontological approach to modelling and capturing knowledge for their reuse in workflow control. The objective is a thorough analysis of knowledge in organisations, creating a knowledge model skeleton and design of methods for capturing, storing and creating knowledge. Development of methods for creating new knowledge is based on algorithms for reasoning on captured knowledge. In the area of reasoning according to existing cases (CBR), a methodology for development of a library of cases for administrative processes has to be created. Also, appropriate algorithms for searching for case similarity have to be found. A case here represents a historical event, which is characterised by the values of its attributes. This way it is possible to model experience of individual employees in maintaining their working activities. Each experience has to be captured in the context, which includes employee, working task, needed documents, and contacts.

**Learning Programming using Adaptive Hypermedia System on the Internet (KEGA 3/2069/04)**

- Project leader:* M. Bielíková
- Members:* R. Filkorn, I. Kapustík, J. Minárová, P. Návrat, G. Kosková, A. Považanová, V. Vranič
- Supported by:* Cultural and Educational Grant Agency of the Ministry of Education of Slovak Republic
- Duration:* September 2004 – December 2006
- Description:* The aim of the project is to improve e-learning methods and tools using adaptive web-based hypermedia. Our work is directed towards learning programming. We concentrate on design of architecture

of adaptive educational web-based system together with techniques for adaptation of educational content presentation (e.g. level of detail presented to a student), adaptation of the layout and adaptive navigation. As a main source of adaptation we consider a student with various characteristics related to learning (e.g., level of knowledge, preferences, previous work with the system). We expect devising new methods and techniques for learning programming using Internet and development of adaptive web-based system for learning programming using several programming paradigms.

**Support of Young Research Workers Education with the Aim to Bring up Inventive Experts – Informatics Professionals – for Modern Society Based on Knowledge (JPD 3 2004/1-022, project code 13120200021)**

*Project leader:* M. Bieliková  
*Members:* L. Molnár, P. Návrat  
*Supported by:* European Social Fund  
*Duration:* December 2004 – December 2006  
*Description:* The project is oriented towards a support of education of young researchers – PhD students. The value is in creating study materials for new PhD degree programmes realized at the Faculty of Informatics and Information Technologies, especially in software engineering. The project also includes financial support of PhD students in order to increase the number of young research workers with highest qualification.

**Tools for Acquisition, Organisation, and Maintenance of Knowledge in an Environment of Heterogeneous Information Resources (2004 SP 20 06K 0A 01 /000 00 06)**

*Project leader:* STU, P. Návrat  
*Members:* UPJŠ Košice, UI SAV Bratislava, SOFTEC Ltd.  
*Supported by:* State programme of research and development “Establishing of Information Society”  
*Duration:* September 2004 – November 2007  
*Description:* The subject of the project is the basic and applied research aimed at the work with knowledge in an environment of heterogeneous information resources. Internet and its services serve as an appropriate environment for the research of new approaches to acquisition, organisation, verification, evaluation, and maintenance of knowledge timeliness. Experiments will be performed also in an intranet environment. The objective is to explore the models needed to work with knowledge – the information content model, the user and context model – and to explore knowledge discovery methods with the use of ontologies. The project results are twofold: the main part represents the basic research results in the domain of knowledge life cycle support in an environment of heterogeneous resources, while the other is the result application in the development of tools and pilot systems aimed at work with knowledge.

**Doctoral Education in Computing (ERASMUS – Thematic Network Project 114046-CP-1-2004-1-BG-ERASMUS-TN)**

<i>Project leader:</i>	STU, P. Návrat
<i>Contractor:</i>	A. Smrikarov, Angel Kunchev University of Rousse, Bulgaria
<i>Countries:</i>	AT, BE, CZ, CY, DK, DE, EE, FI, GR, ES, FR, HU, IE, IS, IT, LU, LV, LT, MT, NL, NO, PL, PT, RO, SE, UK
<i>Supported by:</i>	Socrates programme of the European Commission,
<i>Duration:</i>	October 2004 – September 2007
<i>Description:</i>	The general objectives of the network are to establish the principles of effective, high quality, Europe-valid doctoral studies and to develop the tools for doing this through analysis of the existing systems, exchanging experience and disseminating good practices among all partners. Using the most up-to-date information and communication technologies and the experience gained from the Virtual European Department of Computing (VEDoC), to help acknowledge doctoral studies as an important “third” cycle of education aiming at the achievement of European Dimension in Higher Computing Education and Training.

**Teacher Induction: Supporting the Supporters of Novice Teachers in Europe (TISSNTE)**

<i>Project Leader:</i>	STU, V. Rozinajová
<i>Contractor:</i>	J. Stephenson, Liverpool John Moores University, United Kingdom
<i>Countries:</i>	AT, BE, BG, GR, HU, IE, LT, LV, PT, SK, UK
<i>Supported by:</i>	Socrates programme of the European Commission,
<i>Duration:</i>	October 2006 – September 2009
<i>Description:</i>	The European Commission has developed a common European Framework for teacher competences and qualifications and the planned peer-learning cluster on teacher and training quality will enhance this movement. However, there is no common focus on the specific needs of new entrants to the profession or the concomitant needs of those who will induct and support them in schools. ‘Teachers Matter (OECD 2005) recognises and stresses the need for more attention to be given to the needs of novice teachers. In several EU countries, teachers, often given the title of mentors, have become a valued and integral part of the pre-service training of teachers in a few they are also involved in the induction and support of novice teachers. The aim of this project is to address the role of supporters; identify and analyse what currently takes place; devise instruments to identify the needs of mentors/supporters; facilitate cross European debate about ‘good practice’; formulate a portfolio of support strategies for those involved in supporting novice teachers; stimulate exchange between teachers and teacher educators and support of novice teachers.



## 9.6 Publications

### Journals

- BARLA, M.: Interception of User's Interests on the Web. In: *Lecture Notes in Computer Science*, Berlin Heidelberg, Springer, Vol. 4018 (2006) 435-439.
- BIELIKOVÁ, M., NAGY, P.: Considering Human Memory Aspects for Adaptation and Its Realization in AHA! In: *Lecture Notes in Computer Science*, Berlin Heidelberg, Springer, Vol. 4227 (2006) 8-20.
- BIELIKOVÁ, M.: An adaptive web-based system for learning programming. In: *International Journal of Continuing Engineering Education and Life-Long Learning*, Olney, Bucks, Inderscience Publishers, Vol. 16, No. 1/2 (2006) 122-136.
- JAKUBÍK, J., NÁVRAT, P.: Reuse of Pattern's Source Code. In: *Frontiers in Artificial Intelligence and Applications*, Amsterdam, IOS Press, Vol. 140 (2006) 143-146.
- MAJTÁS, E.: Catalogue of Design Patterns. In: *Frontiers in Artificial Intelligence and Applications*, Amsterdam, IOS Press, Vol. 140 (2006) 139-142.
- MATUŠÍKOVÁ, K., BIELIKOVÁ, M.: Personalized Navigation in Open Information Space Represented by Ontology. In: *Lecture Notes in Computer Science*, Berlin Heidelberg, Springer, Vol. 4018 (2006) 298-302.
- TVAROŽEK, M.: Personalized Navigation in the Semantic Web. In: *Lecture Notes in Computer Science*, Berlin Heidelberg, Springer, Vol. 4018 (2006) 467-471.
- VNUK, M., NÁVRAT, P.: Decompression of Run-Time Compressed PE-Files. In: *Studies in Informatics and Control*, Bucharest, National Institute for R+D in Informatics, Vol. 15, No. 2 (2006) 169-180.
- VRANIĆ, V., ŠÍPKA, M.: Binding Time Based Concept Instantiation in Feature Modeling. In: *LNCS Sublibrary, SL 2, Programming and Software Engineering*, Springer, Verlag Berlin Heidelberg, Reuse of Off-the-Shelf Components (2006) 407-410.
- VRANIĆ, V., ŠNIRC, J.: Integrating Feature Modeling into UML. In: *Lecture Notes in Informatics*, Bonn, Gesellschaft für Informatik, Vol. P-88 (2006) 3-15.

### International Conferences

- BIELIKOVÁ, M., NÁVRAT, P.: Developing Web-based Tools to Support and Enhance Education. In: *E-learning II and Knowledge Society with Section for PhD Students in Computing*, SOCRATES-ERASMUS 114046-CP-1-2004-1-BG-ERASMUS-TN, Gent, Communication and Cognition (2006) 1-8.
- BIELIKOVÁ, M., MORAVČÍK, M.: Modeling the Content of Adaptive Web-Based System Using an Ontology. In: *Semantic Media Adaptation and Personalization*, 1<sup>st</sup> International Workshop on Semantic Media Adaptation and Personalization SMAP 2006, Athens, Los Alamitos, CA, IEEE Computer Society (2006) 115-120.
- FAZEKAS, Z.: On improving Variability by Separation of Concerns in Logical Changes. In: *SOFSEM 2006: Theory and practice of Computer science*, 32<sup>nd</sup> International Conference on Current Trends on Theory and Practice of Computer Science, Měříň (2006) 101-110.

- FRIVOLT, G., BIELIKOVÁ, M.: Improving Job Search by Network of Professions and Companies. In: *SOFSEM 2006: Theory and practice of Computer science*, 32<sup>nd</sup> International Conference on Current Trends on Theory and Practice of Computer Science, Měříň (2006) 111-119.
- HALANOVÁ, Z., NÁVRAT, P., ROZINAJOVÁ, V.: A Tool for Search the Semantic Web for Supplies Matching Demands. In: *CompSysTech'06*, International Conference on Computer Systems and Technologies and Workshop for PhD Students in Computing, Veliko Turnovo, Bulgaria (2006).
- NÁVRAT, P., BIELIKOVÁ, M., ROZINAJOVÁ, V.: Acquiring, Organising and Presenting Information and Knowledge from the Web. In: *CompSysTech'06*, International Conference on Computer Systems and Technologies and Workshop for PhD Students in Computing, Veliko Turnovo, Bulgaria (2006).
- NÁVRAT, P., KOVÁČIK, M.: Web Search Engine as a Bee Hive. In: *2006 IEEE/WIC/ACM International Conference on Web Intelligence*, Hong Kong, Los Alamitos, IEEE Computer Society (2006) 694-701.
- NÁVRAT, P.: Bee Hive metaphor for Web Search. In: *CompSysTech'06*, International Conference on Computer Systems and Technologies and Workshop for PhD Students in Computing, Veliko Turnovo, Bulgaria (2006).
- TURY, M., BIELIKOVÁ, M.: An approach to detection ontology changes. In: *ICWE'06, Workshop of the 6<sup>th</sup> International Conference on Web Engineering*, Palo Alto, California, ACM International Conference Proceeding Series, Vol. 155, New York, ACM Press (2006).
- TVAROŽEK, M., ADAM, M., BARLA, M., SIVÁK, P., BIELIKOVÁ, M.: SPOT-IT: Going Beyond the Vision Loss Boundaries. In: *Improving the quality of life in a changing world, International Symposium on Intelligent Environments*, Cambridge, United Kingdom (2006) 67-76.
- VRANIĆ, V., MARKO, V.: Dealing with Unstable Domains in Product-Line Architecture Development. In: *ISIM'06 – Information Systems Implementation and Modelling*, 9<sup>th</sup> International Conference, Pířerov, (2006) 57-64.

#### **Local and National Conferences**

- ANDREJKO, A., BARLA, M., BIELIKOVÁ, M., TVAROŽEK, M.: Tools for User Characteristics Acquisition. In: *Datakon 2006*, Proceedings of the Annual Database Conference, Brno (2006) 139-148 (in Slovak).
- ANDREJKO, A., BARLA, M., TVAROŽEK, M.: Comparing Ontological Concepts to Evaluate Similarity. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry, Slovak University of Technology (2006) 71-78.
- ANDREJKO, A.: Approaches to the User Modelling. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Bieliková, M. (2006) 160-167.
- BARLA, M., BARTALOS, P., FILKORN, R., SIVÁK, P., SZOBI, K., TVAROŽEK, M.: An Ontological Representation Based Approach Towards Automated Building of Data-acquisition Portals. In: *Tools for Acquisition, Organisation and Presenting of In-*

- formation and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry, Slovak University of Technology (2006) 223-230.
- BARLA, M., BARTALOS, P., PORUBSKÝ, J., SIVÁK, P., SZOBI, K., TVAROŽEK, M.: Dynamic Ontology Based Form Generation for Portal Solutions. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology (2006) 113-120.
- BARLA, M., TVAROŽEK, M.: Automatic Acquisition of Comprehensive Semantic User Activity Logs. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry, Slovak University of Technology (2006) 169-174.
- BARLA, M.: Estimation of User Characteristics from Logs of User Activity. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry, Slovak University of Technology (2006) 175-181.
- BARLA, M.: Interception of User's Interests on the Web. In: *ACM CZ Student Research Competition*, 4th Student Research Competition in Informatics and Information Technologies, Prague, Proceedings of Finalists Papers, Supervisor: Bielíková, M. (2006) 1-8.
- BARTALOS, P., MALEČKA, J.: Building Ontological Test Base Using Specialized Ontology Editor. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry, Slovak University of Technology (2006) 40-45.
- BERNÁT, D., NEHÉZ, M.: Communication networks and phase transitions. In: *Cognition and artificial life VI*, Třešť, Silesian University Press (2006) 41-46 (in Slovak).
- BIELIKOVÁ, M., MORAVČÍK, M.: Using an ontology for representation of the web content for e-learning support. In: *Technologies for e-learning 2006*, Prague, Czech Technical University (2006) 13-24 (in Slovak).
- BIELIKOVÁ, M., NÁVRAT, P., VOJTÁŠ, P., HLUCHÝ, L., BARTOŠ, P.: Software Tools for Acquiring, Organising and Presenting Information and Knowledge on the Web. In: *Datakon 2006*, Annual Database Conference. Brno (2006) 1-20. (in Slovak)
- BIELIKOVÁ, M.: Personalized web systems for education support. In: *SCO 2006 Sharable Content Objects*, 3<sup>rd</sup> Conference on e-learning, Invited Lecture, Brno (2006) 11-17. (in Slovak)
- CHUDÁ, D., TROCHANOVÁ, H., HLAVÁČ, J.: Criteria of testing modules and test in e-learning. In: *Workshop and competition eLearning proceedings*, Hradec Králové, Gaudeamus (2006) 226-232. (in Slovak)
- CHUDÁ, D.: E-learning on University of Economics in Bratislava. In: *University of Economics workshop*, November 2006, Proceedings of abstracts, Bratislava, University of Economics (2006) 7-11 (in Slovak).
- FRIVOLT, G., POK, O.: Comparison of Graph Clustering Approaches. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Bielíková, M. (2006) 168-175.

- FRIVOLT, G.: Cluster Navigator: Identification of Graph Clusters. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry (2006) 90-100.
- GRLICKÝ, V.: Prescott: A Framework for Presentation of Ontology-based Information. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Návrat, P. (2006) 176-182.
- JAKUBÍK, J.: Comparison of CASE Tools Based on Design Patterns Source Code Support. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Návrat, P. (2006) 197-203.
- JAKUBÍK, J.: Possibilities of design patterns reuse. In: *Software development 2006, 32<sup>nd</sup> Conference with International Participation*, Ostrava (2006) 59-66 (in Slovak).
- KISELKO, M.: Type Systems in Programming Languages. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Návrat, P. (2006) 204-211.
- KOŠÍK, M.: METAPOST and the FIIT Logo. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Šafařík, J. (2006) 285-292.
- KRAUSKO, J., BARLA, M., ANDREJKO, ANTON: Semantic search in job offer domain. In: *ITAT 2006: Information Technologies-Applications and Theory*, Workshop on Theory and Practice of Information Technologies, Bystrá dolina, Nízke Tatry (2006) 75-80 (in Slovak).
- LEKAVÝ, M., NÁVRAT, P.: Contingent parallel plans based on operators. In: *ITAT 2006: Information Technologies-Applications and Theory*, Workshop on Theory and Practice of Information Technologies, Bystrá dolina, Nízke Tatry (2006) 113-117.
- LEKAVÝ, M.: Multi-action Backchaining, an Algorithm for Creating Parallel Plans. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Návrat, P. (2006) 212-219.
- LÍŠKA, M.: Formal Unified Process. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Minárová, J. (2006) 220-226.
- MAJTÁS, E.: Content Design of Design Patterns Catalogue. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Filkorn, R. (2006) 227-234.
- MAJTÁS, E.: Specifying the way of design patterns model storing. In: *Objects 2006: Prague* (2006) 137-152 (in Slovak).
- MALEČKA, J., ROZINAJOVÁ, V.: An Approach to Semantic Query Expansion. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry (2006) 148-153.
- MÁTÉ, J.: Computing Environment for Active File System. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Šafařík, J. (2006) 235-243.
- NAGY, P.: Considering Human Memory Aspects for Adaptation in AHA!. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Bieliková, M. (2006) 129-136.

- NÁVRAT, P., BARTOŠ, P., BIELIKOVÁ, M., HLUCHÝ, L., VOJTÁŠ, P.: Acquiring, Organising and Presenting Information and Knowledge in an Environment of Heterogeneous Information Sources. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry (2006) 1-12.
- NÁVRAT, P., BIELIKOVÁ, M.: Tools for knowledge acquisition, organisation and maintenance in the environment of heterogeneous information sources. In: *Znalosti 2006*, 5<sup>th</sup> Annual Conference, Hradec Králové (2006) 237-242 (in Slovak).
- NÁVRAT, P., BUDINSKÁ, I., BIELIKOVÁ, M., HLUCHÝ, L., VOJTÁŠ, P.: Methods and tools for knowledge acquiring, organising and presenting in the environment of World Wide Web. In: *INFOSEM 2006*, Piešťany (2006) 216-223 (in Slovak).
- NECZLI, A., KRIVUŠ, V., MEŠŤANÍK, P., SUCHAL, J., VOJTEK, P., ŽIDEK, P.: RoboCup 3D Player Framework. In: *IIT.SRC – Student Research Conference*, Slovak University of Technology, Supervisor: Lekavý, M. (2006) 191-196.
- RADO, L.: Probabilistic Clustering of Documents. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Kosková, G. (2006) 1-8.
- SLEZÁK, J.: Estimating Software Quality by Small World Graph Concepts. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Filkorn, R. (2006) 186-190.
- ŠTÍPEK, M., GR LICKÝ, V.: Ontology-based Information Presentation. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry (2006) 193-200.
- SÝKORA, P., JANŽO, A., SZÖCS, V., FRIVOLT, G.: Automated Information Retrieval from heterogeneous Web sources. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry (2006) 31-39.
- TVAROŽEK, M., BARLA, M., BIELIKOVÁ, M., GR LICKÝ, V., ANDREJKO, A., FILKORN, R., BARTALOS, P.: Presentation and Personalization of Information in the Semantic Web. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry (2006) 201-207.
- TVAROŽEK, M.: Personalized Navigation in the Semantic Web. In: *ACM CZ Student Research Competition, 4<sup>th</sup> Student Research Competition in Informatics and Information Technologies*, Prague, Proceedings of Finalists Papers, Supervisor: Bieliková, M. (2006) 73-80.
- TVAROŽEK, M.: Personalized Navigation in the Semantic Web. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry, Slovakia, September 29-30, 2006, Proceedings, Bratislava, STU, (2006), pp. 182-192.
- VNUK, M.: Decompression of Run -Time Compressed PE Files. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Návrat, P. (2006) 243-250.

- VOJTEK, P., GR LICKÝ, V.: Identification of Natural Language using N-grams and Markov Processes. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry (2006) 154-161.
- VOJTEK, P.: Natural Language Identification in the World Wide web. In: *IIT.SRC 2006 – Student Research Conference*, Slovak University of Technology, Supervisor: Grlický, V. (2006) 153-159.
- VRANIČ, V., MARKO, V.: Developing a Product-Line Based Architecture in a Domain Under Research. In: *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*, Research Project Workshop Bystrá dolina, Nízke Tatry (2006) 211-222.

### Books

- BIELIKOVÁ, M., NÁVRAT, P., ANDREJKO, A., BLŠŤÁK, P., FRIVOLT, G., GR LICKÝ, V., JAKUBÍK, J., KOŠÍK, M., KURUC, J., LEKAVÝ, M., MARKO, V., NAVARČÍK, M.: *Essays on selected topics of software engineering*, Volume 1, Slovak University of Technology (2006) 232 p. (in Slovak).
- BIELIKOVÁ, M., NÁVRAT, P., ANDREJKO, A., EZZEDINE, A. B., FRIVOLT, G., JAKUBÍK, J., KISELKOV, M., MAJTÁS, E., MÁTÉ, J., POLICKÝ, I., SOLČÁNY, V., ŠECHNÝ, M., VNUK, M.: *Essays on selected topics of software engineering*, Volume 2, Slovak University of Technology (2006) 226 p. (in Slovak).
- NÁVRAT, P., BIELIKOVÁ, M., BEŇUŠKOVÁ, E., KAPUSTÍK, I., UNGER, M.: *Artificial Intelligence*. Slovak University of Technology, Edition of Textbooks (2006) 393 p. (in Slovak).
- NÁVRAT, P., BARTOŠ, P., BIELIKOVÁ, M., HLUCHÝ, L., VOJTÁŠ, P. (Eds.): *Tools for Acquisition, Organisation and Presenting of Information and Knowledge*. Research Project Workshop, Bystrá dolina, Nízke Tatry, Proceedings (2006) 242 p.
- BIELIKOVÁ, M. (Ed.): *IIT.SRC 2006 – Student Research Conference 2006*. Proceedings in Informatics and Information Technologies, Slovak University of Technology (2006) 328 p.
- BIELIKOVÁ, M., MANNOVÁ, B., ŠALOUN, P. (Eds.): *TPEV 2006 – Technologies for e-learning*. Proceedings. Prague, Czech Technical University in Prague (2006) 74 p.
- MANNOVÁ, B., ŠALOUN, P., BIELIKOVÁ, M. (Eds.): *ACM CZ Student Research Competition. 4<sup>th</sup> Student Research Competition in Informatics and Information Technologies Prague*, Proceedings of Finalists Papers (2006).
- WIEDERMANN, J., POKORNÝ, J., BIELIKOVÁ, M., ŠTULLER, J. (Eds.): *SOFSEM 2006 – Theory and Practice of Computer Science. 32<sup>nd</sup> International Conference on Current Trends in Theory and Practice of Computer Science*, Meřín, Proceedings. Lecture Notes in Computer Science, Berlin Heidelberg, Springer (2006) 576 p.
- WIEDERMANN, J., TEL, G., POKORNÝ, J., BIELIKOVÁ, M., ŠTULLER, J. (Eds.): *SOFSEM 2006 – Theory and practice of Computer Science. 32<sup>nd</sup> International Conference on Current Trends on Theory and Practice of Computer Science*, Měřín, Proceedings Vol. II, Prague (2006).

## Reviews in Journals

- BIELIKOVÁ, M. (rev.): Antoniou, G., Harmelen van, F.: A semantic Web primer, Cambridge, MIT Press, 2004. In: *ACM Computing Reviews*, New York, Association for Computing Machinery, Vol. 47, No. 1 (2006) 22-23.
- BIELIKOVÁ, M. (rev.): Alexis Leon. Software configuration management handbook (2<sup>nd</sup> ed.). Artech House, Inc., Norwood, MA, 2004. In: *ACM Computing Reviews*. New York, Association for Computing Machinery, Vol. 47, No. 5 (2006) 265.
- BIELIKOVÁ, M. (rev.): Suh, W.: Web engineering: principles and techniques, Hershey, Idea Group Publishing, 2005. In: *ACM Computing Reviews*, New York, Association for Computing Machinery, Vol. 47, No. 9 (2006) 536-537.
- NÁVRAT, P. (rev.): Alesso, H., Smith, C.: Developing semantic Web services. Wellesley: A.K. Peters, Ltd., 2004. In: *ACM Computing Reviews*. New York Association for Computing Machinery. Vol. 47, No. 6 (2006) 536.

## Abstracts

- ANDREJKO, A., BARLA, M., BIELIKOVÁ, M.: Ontology-Based User Modelling for Web-Based Information Systems. In: ISD 2006 – 15<sup>th</sup> International Conference on Information Systems Development, Budapest, (2006).
- BARLA, M., BARTALOS, P., SIVÁK, P., SZOBI, K., TVAROŽEK, M., FILKORN, R.: Ontology as an Information Base for Domain Oriented Portal Solutions. In: ISD 2006 – 15<sup>th</sup> International Conference on Information Systems Development (2006).
- BIELIKOVÁ, M., FRIVOLT, G.: Growing World Wide Social Network by Bridging Social Portal Using FOAF. In: *EKA2006: Poster and Demo Proceedings of the 15<sup>th</sup> International Conference on Knowledge Engineering and Knowledge Management*, Poděbrady (2006) 9-10.

## 9.7 Cooperation

### Cooperation in Slovakia

- Institute of Informatics, Slovak Academy of Sciences, Bratislava
- Pavol Jozef Šafárik University in Košice, Faculty of Science, Institute of Informatics
- Technical University of Košice, Faculty of Electrical Engineering and Informatics
- University of Žilina, Faculty of Management Science and Informatics, Žilina
- Ditec Ltd.
- Datalan Ltd.
- Gratex International Ltd.
- Hewlett-Packard Slovakia Ltd.
- IBM Slovakia Ltd.
- Microsoft Slovakia Ltd.
- Oracle Slovakia Ltd.

- Siemens Ltd.
- Softec Ltd.
- T-Com

### **International Cooperation**

- Department of Computers, Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Republic
- Department of Information Systems, Faculty of Information Technologies, Brno University of Technology, Czech Republic
- Department of Intelligent Systems, 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
- 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
- UNESCO–Division of Information and Informatics, Paris, France
- INRIA, Grenoble, France
- University of Maribor, Slovenia
- Aristotle University of Thessaloniki, Greece
- University of Hannover, L3S Research Center, Germany
- Institute of Computer Science, Faculty of Philosophy and Natural Sciences, Silesian University in Opava, Czech Republic
- LaBRI, University of Bordeaux 1, France

### **Visits of Staff Members**

- *M. Bieliková, G. Frivolt, J. Jakubík*: 32<sup>nd</sup> International Conference SOFSEM 2006, Měříň, Czech Republic, January 21-27, 2006
- *M. Bieliková*: 3<sup>rd</sup> E-learning Conference SCO 2006, Brno, Czech Republic, February 1-2, 2006
- *P. Návrat*: Knowledge 2006, Hradec Králové, Czech Republic, February 1-3, 2006
- *M. Bieliková*: Forschungszentrum L3S, Hannover, Germany, March 5-6, 2006
- *E. Molnár*: 4<sup>th</sup> Session of the Intergovernmental Council for the Information for All Programme, UNESCO, Paris, France, March 19-23, 2006
- *P. Návrat*: Faculty of Information Technology, Brno, Czech Republic, March 20, 2006
- *M. Adam, M. Tvarožek*: International Symposium on Intelligent Environments, ISIE 2006, Cambridge. United Kingdom, April 3-7, 2006
- *V. Vranić*: 9<sup>th</sup> International Conference Information Systems Implementation and Modelling ISIM 2006, Přerov, Czech Republic, April 25-27, 2006



- *M. Bieliková*: Program Committee of the Technologies for e-learning, Czech Technical University, Prague, Czech Republic, May 12-13, 2006
- *L. Molnár*: Institut Supérieur d'Electronique de Paris, France, May 22-26, 2006
- *P. Návrat*: 15<sup>th</sup> International World Wide Web Conference WWW 2006, Edinburgh, United Kingdom, May 22-27, 2006
- *G. Frivolt*: Technical University, Vienna, Austria, May 25, 2006
- *M. Bieliková, P. Návrat*: Scientific Council of the Faculty of Information Technology, Brno, Czech Republic, May 31, 2006
- *J. Jakubík*: 32<sup>nd</sup> Conference Software Development 2006, Ostrava, Czech Republic, June 5-7, 2006
- *M. Bieliková*: Technologies for e-learning, Prague, Czech Republic, June 11-12, 2006
- *V. Vranić*: 9<sup>th</sup> International Conference on Software Reuse ICSR9, Torino, Italy, June 11-16, 2006
- *P. Návrat*: International Conference on Computer Systems and Technologies CompSysTech 2006, Veliko Turnovo, Bulgaria, June 13-16, 2006
- *M. Bieliková, A. Andrejko, M. Barla, M. Tvarožek*: 4<sup>th</sup> International Conference on Adaptive Hypermedia AH 2006, Dublin, Ireland, June 18-25, 2006
- *M. Bieliková*: ICWE International Conference on Web Engineering 2006, Palo Alto, California, USA, July 8-17, 2006
- *P. Návrat*: Austrian Accreditation Council, Vienna, Austria, July 25-26, 2006
- *J. Jakubík, L. Majtas*: 7<sup>th</sup> Joint Conference on Knowledge-Based Software Engineering JCKBSE'06, Tallin, Estonia, August 27-31, 2006
- *R. Filkorn, M. VňBarla, M. Bartalos*: 15<sup>th</sup> International Conference on Information Systems Development ISD 2006, Budapest, Hungary, August 31- September 3, 2006
- *Frivolt G.*: Reasoning Web 2006 Summer School, Universidade Nova de Lisboa, Portugal, September 3-10, 2006
- *P. Návrat*: 18<sup>th</sup> Annual EAIE Conference Quality in internationalization, from theory to practice, Basel, Switzerland, September 13-15, 2006
- *V. Vranić*: Net.ObjectsDays 2006, Erfurt, Germany, September 17-21, 2006
- *G. Frivolt*: EKAW 2006 – 15<sup>th</sup> International Conference on Knowledge Engineering and Knowledge Management, Poděbrady, Czech Republic, October 2-6, 2006
- *M. Bieliková*: 1<sup>st</sup> European Conference on Technology Enhanced Learning EC-TEL 2006, Crete, Greece, October 1-5, 2006
- *L. Molnár*: UNESCO, Paris, France, October 2-6, 2006
- *M. Bieliková, M. Barla, M. Tvarožek*: Datakon 2006, Brno, Czech Republic, October 14-17, 2006
- *P. Návrat*: Czech and Slovak Accreditation Committee, Mikulov, Czech Republic, October 17-18, 2006
- *M. Bieliková*: Czech Technical University, Prague, Czech Republic, October 20, 2006

- *P. Návrat*: Czech and Slovak Accreditation Committee, Czech Republic, November 21-22, 2006
- *L. Majtás*: Objects2006, Prague, Czech Republic, November 23-24, 2006
- *M. Bieliková, M. Barla, M. Dobiš, M. Tomša, M. Tvarožek, R. Veselý*: ACM Student Research Conference 2006, Prague, Czech Republic, November 24-25, 2006
- *M. Bieliková*: 1<sup>st</sup> International Workshop on Semantic Media Adaptation and Personalization SMAP 2006, Athens, Greece, December 2-6, 2006
- *P. Návrat*: ENQA seminar, Vienna, Austria, December 4-5, 2006
- *M. Bieliková, P. Návrat*: The 2006 IEEE/WIC/ACM International Conference on Web Intelligence, Hong Kong, China, December 15-23, 2006

## 9.8 Membership in Professional Organisations and Societies

### Slovak Professional Organisations and Societies

#### *Mária Bieliková*

- Slovak Artificial Intelligence Association (member, since 2000)
- Slovak Centre of the IEE (member, since 1998)
- Slovak Society for Computer Science (member, since 1998; member of the executive committee, since 2000)

#### *Eudovít Molnár*

- Informatics Working Group of the Accreditation Commission of Slovakia (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*

- Accreditation Commission of Slovakia (vice-chair, since 1999; chair, since 2002)
- Informatics Working Group of the Accreditation Commission of Slovakia (member, since 1999)
- 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 IEE (member, since 1996; chair, since 1997)
- Slovak Society for Computer Science (member, since 1992)

#### *Martin Nehéz*

- Slovak Society for Computer Science (member, since 1998)

#### *Valentino Vranič*

- Slovak Society for Computer Science (member, since 2001)

**International Professional Organisations and Societies***Mária Bieliková*

- Institute of Electrical and Electronic Engineers (member, since 1998; senior member since 2003)
- IEEE Computer Society (member, since 1997)
- Institution of Electrical Engineers (member, since 1998)
- Engineering Council, UK (registered Chartered Engineer, since 1998)
- Association for Computing Machinery (member, since 1998)
- 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)

*Pavol Návrat*

- Central and Eastern European Network for Quality Assurance in Higher Education (chair, since 2006)
- American Association for Artificial Intelligence (member, since 1993)
- Association for Advancement of Computers in Education (member, since 1998)
- Institute of Electrical and Electronic Engineers (member, since 1996; senior member, since 1998)
- IEEE Computer Society (member, since 1996)
- Association for Computing Machinery (member, since 1998)
- International Federation for Data Processing (IFIP) (member of Technical Committee TC12 – Artificial Intelligence, since 1998)
- Institution of Electrical Engineers (member, since 1998; fellow, since 1998)
- Engineering Council, UK (registered Chartered Engineer, since 1998)
- Joint Conference on Knowledge-Based Software Engineering Series, standing Steering Committee (member, since 1998)
- Advances in Databases and Information Systems Conference Series, standing Steering Committee (member, since 1998)
- Znalosti Conference Series, standing Steering Committee (member, since 2006)

*Ludovít Molnár*

- Institute of Electrical and Electronic Engineers (member, since 1991)
- ACM (member, since 1991)
- International Federation for Data Processing (IFIP) (member of Technical Committee TC2 – Software: Theory and Practice, since 1995)
- UNESCO (Slovak Commission: member of bureau –1993-96, chair – since 1996, Informatics section – chair since 1993. HQ Paris: IIP – member of bureau –1996-98, chair – 1998-2001, IFAP – member of bureau – since 2001. Executive Board – member – since 2001)

## 9.9 Other Activities

- ACM International Collegiate Programming Contest 2006 – Slovak University of Technology Contest (I. Polický: event organiser)  
<http://www.fiit.stuba.sk/acm/>
- ACM CZ Student Research Competition 2006, Prague, Czech Republic – participation of 3 student projects (M. Bielíková: supervisor), finals, Prague, Czech republic (1<sup>st</sup> place, 2<sup>nd</sup> place, 5<sup>th</sup> place)
- IEEE Computer Society International Design Competition (CSIDC 2006) – participation of a student team (M. Bielíková: mentor)  
<http://www.fiit.stuba.sk/csdc/>
- ProFIIT 2006 – Programming Competition for Secondary School Students (L. Galbavá: event organiser)  
<http://www.fiit.stuba.sk/ProFIIT/>
- RoboCup, Soccer Simulation League, Regional Tournament in Bratislava, June 1-2, 2006 – I. Kapustík: event director, M. Lekavý: event organiser  
<http://www.fiit.stuba.sk/robocup/>
- Imagine Cup 2006 – participation of best Slovak student team in regional contest in Maribor (M. Bielíková, supervisor)
- IIT.SRC 2006 – Informatics and Information Technologies Student Research Conference, April 26, 2006 – V. Šimáková: organising committee chair, M. Bielíková: programme committee chair, P. Návrat, L. Molnár, J. Minárová: members of programme committee  
<http://www.fiit.stuba.sk/iit-src/>
- Computing and Informatics (CAI) – P. Návrat: member of the editorial board
- International Journal of Intelligent Information and Database Systems – M. Bielíková: member of the editorial board
- Bulletin of the Slovak Society for Computer Science – M. Bielíková: member of the editorial board
- ACM CZ Student Research Competition 2006 – M. Bielíková: member of steering committee
- (Co)-organizing conferences ITAT 2006, WIKT 2006, TPEV 2006, Znalosti 2006
- SOFSEM 2006 – 32<sup>nd</sup> Annual Conference on Current Trends in Theory and Practice of Computer Science, January 21–27, 2006, Měříň, Czech Republic – M. Bielíková: member of steering committee, chair of Student Research Forum
- ISIM 2006 – 9<sup>th</sup> Int. Conf. on Information Systems Implementation and Modeling, April 25–27, 2006, Píerov, Czech Republic – M. Bielíková, P. Návrat: members of programme committee
- ZNALOSTI 2006, February 1–3, 2006, Hradec Králové, Czech Republic – M. Bielíková, P. Návrat: members of programme committee, P. Návrat: member of steering committee
- IADIS Virtual Multi Conference on Computer Science and Information Systems (MCCIS 2006) – Intelligent Systems and Agents – ISA2006, April 3–7, 2006 – M. Bielíková: member of programme committee

- 
- ECDL 2005 – 10<sup>th</sup> European Conference on Research and Advanced Technology for Digital Libraries, September 17–22, 2006, Alicante, Spain – M. Bieliková: member of programme committee
  - RAAWS 2006 – Recommender Agents and Adaptive Web-based Systems, invited session at the 10<sup>th</sup> International Conference on Knowledge-Based & Intelligent Information & Engineering Systems, KES 2006, October 9–11, 2006, Bournemouth, England – M. Bieliková: member of programme committee
  - ITAT 2006 – Conference on Information Intelligent Technologies – Applications and Theory. September 26–October 1, 2006. Bystrá dolina, Slovakia – M. Bieliková, P. Návrát: members of programme committee
  - Tools for Acquisition, Organisation and Presenting of Information and Knowledge, Research Project Workshop, September 30–October 1, 2006, Bystrá dolina, Slovakia – M. Bieliková, P. Návrát: members of programme committee
  - DATAKON 2006 – Annual Conference on the Current Trends in Databases and Information Systems, October 14–17, 2006, Brno, Czech Republic – M. Bieliková: member of steering committee, member of programme committee
  - TPEV 2006 – Technologies for E-Learning 2006. Prague, Czech Republic, June 12, 2006 – M. Bieliková: member of programme committee, member of organising committee
  - ADBIS 2006 – 10<sup>th</sup> East-European Conf. on Advances in Databases and Information Systems, September 3–7, 2006, Thessaloniki, Greece – P. Návrát: member of steering committee, P. Návrát: members of programme committee
  - JCKBSE 2006 – 7th Joint Conference on Knowledge-Based Software Engineering, August 28–31, 2006, Tallinn, Estonia – P. Návrát: member of programme committee
  - AIAI 2006: IFIP AI 2006 – Artificial Intelligence in Theory and Practice (part of the IFIP World Computer Congress WCC2006), August 21–24, 2006, Santiago de Chile – P. Návrát: member of programme committee
  - Baltic DB&IS 2006 – 7<sup>th</sup> International Baltic Conference on Databases and Information systems, July 3–6, 2006, Vilnius, Lithuania – M. Bieliková: member of programme committee
  - SCO 2006 – 3<sup>rd</sup> International Conference on Sharable Content Objects, February 1–2, 2006, Brno, Czech Republic – M. Bieliková: member of programme committee
  - SET 2006 – IFIP Working Conference on Software Engineering Techniques, October 18–20, 2006, Warsaw, Poland – M. Bieliková: member of programme committee
  - CSIT 2006 – Computer Science & Information Technology, Special Session on Dynamic Networks, April 5–7, 2006, Amman, Jordan – M. Bieliková: member of programme committee
  - WIKT 2006 – 1<sup>st</sup> Workshop on Intelligent and Knowledge oriented Technologies, November 28–29, Bratislava, Slovakia – M. Bieliková, P. Návrát: members of programme committee



---

---

## 10 Regional Networking Academy

---

---

**E-mail:** [info@cisco.fiit.stuba.sk](mailto:info@cisco.fiit.stuba.sk)  
**Web:** [www.cisco.fiit.stuba.sk](http://www.cisco.fiit.stuba.sk)  
**Tel:** + 421 2 602 91 689  
**Fax:** + 421 2 654 20 587

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 systems and Computer 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. 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 19 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

Bieleková Alexandra

### Instructor Staff

Boris Dado

Igor Grellneth, PhD., CCNA, CCAI

Štefan Gula

Katarína Jelemenská, PhD.

Margaréta Kotočová, Associate Professor, CCNA, CCAI

Dušan Malina

Peter Mesjar, CCNA, CCNP, CCAI, CCIE

### Engineering Staff

Dušan Bernát

## 10.2 Projects

- Solving the grant project No. VG 1/3104/06 „Systems of grid computing and its components”
- Solving the grant project „Pilot project for education of selected modern IT topics in in lifelong education process using modern teaching methods”
- 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.

## 10.3 Cooperation

### Cooperation in Slovakia

- Technical University in Košice, Faculty of Electrical Engineering and Information Technology, Regional Cisco Networking Academy
- University of Žilina, Faculty of Management Science and Informatics, Regional Cisco Networking Academy
- Asset Ltd.
- BGS Ltd.
- CISCO Systems Ltd.
- Datalan Ltd.
- DITEC Ltd.



- GTEC Slovakia Ltd.
- Hewlett-Packard Slovakia Ltd.
- IBM Slovakia Ltd.
- Microsoft Slovakia Ltd.
- Tronet Ltd.
- Soitron Ltd.

**International Cooperation**

- Czech University of Technology, Regional Cisco Networking Academy, Prague, Czech Republic
- Technical University in Brno, Faculty of Information Technologies, Regional Cisco Networking Academy, Brno, Czech Republic
- University of West Bohemia in Plzen, Department of Computers, Regional Cisco Networking Academy, Pilsen, Czech Republic
- Technical University in Ostrava, Regional Cisco Networking Academy, Ostrava, Czech Republic
- CATC Vienna, Austria
- CATC Birmingham, UK



---

---

## **11 Events Photo Gallery**

---

---



---

---

## 12 FIIT Personnel

---

---

ANDREJKO, Anton, Ing.	Institute of Informatics and Software Engineering
ANGELOVIČ, Peter, Ing.	Institute of Applied Informatics
BAGALA, Adrián, Ing.	Institute of Computer Systems and Networks
BARLA, Michal, Ing.	Institute of Informatics and Software Engineering
BARTALOS, Peter, Bc.	Institute of Informatics and Software Engineering
BÁTORYOVÁ, Magda	Registry
BELAJOVÁ, Lenka	Deanship – Study Affairs
BERNÁT, Dušan	Institute of Computer Systems and Networks
BIELEKOVÁ, Alexandra, Ing.	Head of Administrative Department
BIELIKOVÁ, Mária, prof. Ing. PhD.	Institute of Informatics and Software Engineering
BOU EZZEDDINE, Anna, RNDr.	Institute of Informatics and Software Engineering
BRATH, Peter	Centre of Computing and Communication Services
BREZNENOVÁ, Soňa	Deanship – Personal Resources
CSONKOVÁ, Monika, Mgr.	Deanship – Research
ČERŇANSKÝ, Michal, Ing.	Institute of Applied Informatics
ČIČÁK, Pavel, doc. Ing. PhD.	Institute of Computer Systems and Networks
DADO, Boris, Ing.	Institute of Computer Systems and Networks
DRAHOŠ, Peter, Ing.	Institute of Applied Informatics
DRGONEC, Vladimír, Ing.	Centre of Computing and Communication Services
FILKORN, Roman, Ing.	Institute of Informatics and Software Engineering
FLOCHOVÁ, Jana, Ing. PhD.	Institute of Computer Systems and Networks
FRIŠTACKÝ, Norbert, prof. Ing. PhD.	Institute of Computer Systems and Networks
FRIVOLT, Juraj, Mgr.	Institute of Informatics and Software Engineering
FŮZY, Libor	Centre of Information and Library Services
GALBAVÁ, Lucia, Mgr.	Institute of Informatics and Software Engineering
GALBAVÝ, Miroslav, Ing.	Institute of Applied Informatics
GNIPOVÁ, Marta, RNDr.	Institute of Informatics and Software Engineering
GRAMATOVÁ, Elena, doc. RNDr., PhD.	Institute of Computer Systems and Networks
GREGUŠOVÁ Daniela, doc. JUDr. CSc.	Institute of Informatics and Software Engineering

GRELLNETH, Igor, Ing. PhD.	Institute of Computer Systems and Networks
GRLICKÝ, Vladimír, Ing.	Institute of Informatics and Software Engineering
HABAJOVÁ, Eva	Deanship – Economics
HANULOVÁ, Ľubica, prom. mat.	Institute of Informatics and Software Engineering
HASAN, Jamal, Ing. PhD.	Institute of Computer Systems and Networks
HINKA, Martin, Ing.	Institute of Applied Informatics
HLUCHÝ, Pavol	Centre of Computing and Communication Services
HORVÁTH, Pavol, prof. Ing., PhD.	Institute of Computer Systems and Networks
HRICOVÁ, Mária	Deanship – Research
HUDEEC, Ján, Ing.	Institute of Computer Systems and Networks
HUDEEC, Ladislav, doc. Ing. PhD.	Institute of Computer Systems and Networks
HUSÁROVÁ, Zuzana, prom. mat.	Institute of Informatics and Software Engineering
HUSKOVÁ, Ľubica	Deanship – Study Affairs
CHUDÁ, Daniela, Mgr. PhD.	Institute of Informatics and Software Engineering
IMRECZE, Vojtech, Bc.	Institute of Informatics and Software Engineering
JAKUBÍK, Jaroslav, Ing.	Institute of Informatics and Software Engineering
JELEMENSKÁ, Katarína, Ing. PhD.	Institute of Computer Systems and Networks
JURČOVIČ, Peter, Mgr.	Institute of Applied Informatics
KAPUSTÍK, Ivan, Ing.	Institute of Informatics and Software Engineering
KAPEC, Peter, Ing.	Institute of Applied Informatics
KIMLIČKA, Štefan, prof. Ing. PhD.	Institute of Informatics and Software Engineering
KISELKOVI, Martin, Ing.	Institute of Informatics and Software Engineering
KOLESÁR, Milan, prof. Ing. PhD.	Institute of Computer Systems and Networks
KOMOROVÁ, Dagmar, prom. mat.	Institute of Informatics and Software Engineering
KORDOŠOVÁ, Silvia	Deanship – Secretariat
KOSKOVÁ, Gabriela, Mgr. PhD.	Institute of Informatics and Software Engineering
KOŠÍK, Matej, Ing.	Institute of Informatics and Software Engineering
KOTMANOVÁ, Daniela, Ing.	Institute of Computer Systems and Networks
KOTOČOVÁ, Margaréta, doc. Ing. PhD.	Institute of Computer Systems and Networks
KOVÁROVÁ, Alena, Mgr.	Institute of Applied Informatics
KRAJČOVIČ, Tibor, doc. Ing. PhD.	Institute of Computer Systems and Networks
KUKLA, Franz	Centre of Computing and Communication Services
KULIŠIAKOVÁ, Marta	Deanship – Economics
KVASNIČKA, Vladimír, prof. Ing. DrSc.	Institute of Applied Informatics
LACKO, Peter, Ing.	Centre of Computing and Communication Services
LEKAVÝ, Marián, Ing.	Institute of Informatics and Software Engineering
MACKOVÁ, Zuzana	Institute – Secretariat
MAJTÁS, Ľubomír, Ing.	Institute of Informatics and Software Engineering
MAKULA, Matej, Ing.	Institute of Applied Informatics

MALEČKA, Juraj, Bc.	Institute of Informatics and Software Engineering
MALINA, Dušan, Ing.	Institute of Computer Systems and Networks
MARUŠINCOVÁ, Zuzana, Bc.	Deanship – Research
MÁTÉ, Ján, Ing.	Institute of Informatics and Software Engineering
MAŽGUT, Jakub, Ing.	Institute of Informatics and Software Engineering
MIHINOVÁ, Zlatica	Deanship – Study Affairs
MINÁROVÁ, Jana, doc. Ing. PhD.	Institute of Informatics and Software Engineering
MIŠÍKOVÁ, Zuzana	Deanship – Economics
MLYNAROVIC, Marián, Ing. PhD.	Institute of Informatics and Software Engineering
MLYNAROVIC, Vladimír, doc. Ing. PhD.	Institute of Informatics and Software Engineering
MOLNÁR, Ľudovít, prof. RNDr. DrSc.	Institute of Informatics and Software Engineering
NÁVRAT, Pavol, prof. Ing. PhD.	Institute of Informatics and Software Engineering
NEHÉZ, Martin, Mgr.	Institute of Informatics and Software Engineering
NIŽŇANSKÝ, Milan	Centre of Computing and Communication Services
PAPULA, Jozef, prof. Ing., PhD.	Institute of Informatics and Software Engineering
PARÍZKOVÁ, Jana, RNDr.	Institute of Applied Informatics
PAVLIČKO, Slavomír, Bc.	Centre of Computing and Communication Services
POLÁŠEK Ivan, Ing., PhD.	Institute of Informatics and Software Engineering
POLICKÝ, Ivan, RNDr.	Institute of Informatics and Software Engineering
POSPÍCHAL, Jiří, prof. RNDr. DrSc.	Institute of Applied Informatics
POVAŽANOVÁ, Anna, Ing.	Institute of Informatics and Software Engineering
PRIBIŠOVÁ, Katarína, Ing.	Institute – Secretariat
RENDEKOVÁ, Gabriela	Centre of Information and Library Services
ROZINAJOVÁ, Viera, Ing. PhD.	Institute of Informatics and Software Engineering
RUSNÁKOVÁ, Ľudmila	Deanship – Economics
SABOVÁ, Erika	Deanship – Economics
SEIDMANN, Tomáš, hosť.doc. Ing. PhD.	Institute of Informatics and Software Engineering
SOLČÁNY, Viliam, Ing.	Institute of Applied Informatics
STEINMÜLLER, Branislav, Ing.	Institute of Applied Informatics
STRNÁD, Ondrej, Ing., PhD.	Institute of Applied Informatics
SUDOLSKÝ, Štefan, Ing.	Institute of Informatics and Software Engineering
SUCHAN, Martin	Centre of Computing and Communication Services
ŠAFAŘÍK, Jiří, prof. Ing. PhD.	
ŠECHNÝ, Martin, Mgr.	Institute of Informatics and Software Engineering
ŠELMECIOVÁ, Mária	Deanship – Economics
ŠEŠERA, Ľubor, hosť.doc. RNDr., PhD.	Institute of Informatics and Software Engineering
ŠIMÁKOVÁ, Valéria, RNDr.	Institute of Informatics and Software Engineering
ŠPERKA, Martin, doc. Ing. PhD.	Institute of Applied Informatics
ŠPIČKA, Ján, Ing.	Faculty Secretary

ŠTEFANOVIČ, Juraj, Ing. PhD.	Institute of Applied Informatics
TAKÁCS, Michal, Ing.	Institute of Applied Informatics
TIŇO, Peter, Ing. PhD.	Institute of Applied Informatics
TOLLÁROVÁ, Alžbeta	Deanship – Study Affairs
TOMALOVÁ, Elena, Ing.	Institute of Computer Systems and Networks
TOMŠA, Marek, Bc.	Institute of Informatics and Software Engineering
TÖRÖK, Timotej, Ing.	Institute of Computer Systems and Networks
TREBATICÝ, Peter, Ing.	Institute of Applied Informatics
URBANÍKOVÁ, Eva	Deanship – Study Affairs
VESELÝ, Richard, Bc.	Institute of Informatics and Software Engineering
VOJTEK, Peter, Bc.	Institute of Informatics and Software Engineering
VOJTEK, Vladimír, prof. Ing. PhD.	Institute of Applied Informatics
VOZÁR, Oto, Bc.	Institute of Informatics and Software Engineering
VRANIĆ, Valentino, Ing. PhD.	Institute of Informatics and Software Engineering
WINZER, Michal, RNDr.	Institute of Informatics and Software Engineering
ZEMANOVIČOVÁ, Oľga, Mgr.	Institute of Applied Informatics
ZIMEN, Michal, Ing.	Institute of Computer Systems and Networks
ŽIAK, Ján, Ing.	Institute of Applied Informatics



Annual Report 2006

Faculty of Informatics and Information Technologies  
Slovak University of Technology in Bratislava

104 pages

Print Vydavateľstvo STU Bratislava  
2007