

DEPARTMENT OF CYBERNETICS AND ARTIFICIAL INTELLIGENCE

<http://www.tuke.sk/kkui/>
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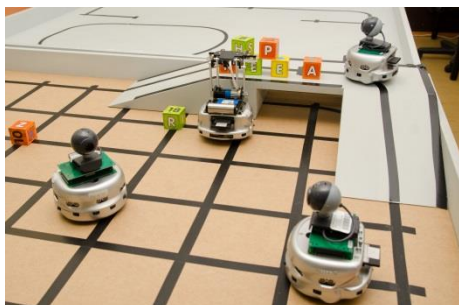
Head of Department
prof. Ing. Peter Sinčák, CSc.
E-mail: Peter.Sincaak@tuke.sk



1 DEPARTMENT'S PROFILE

The Department (DCAI) is responsible for education in the following bachelor study programs: Cybernetics and Business informatics; in the following master study programs: Cybernetics and Information-Control Systems, Artificial Intelligence, Business Informatics; and following PhD-study programs: Cybernetics and Information-Control Systems, Artificial Intelligence, and Business Informatics.

The main research topics at the Department are intelligent methods and algorithms for control and modeling of large-scale systems; risk-sensitive diagnosis of uncertain systems; computational intelligence techniques for modeling of intelligent systems and miscellaneous applications; intelligent decision support systems; pattern recognition; knowledge discovery; knowledge technologies for information retrieval and knowledge management and business information systems.



The predecessor of the Department was founded in 1964. Department of Cybernetics and Artificial Intelligence was adapted in 1989. Currently it has 26 staff members, 27 internal and 5 external Ph.D. students. There are 3 research centers within

the department: Center of Intelligent Technologies, Center of Applied Cybernetics and Center of Business Informatics (<http://web.tuke.sk/kkui/en/vyskumne-skupiny-a-projekty>). The Department is involved in a number of research and educational projects.

2 STAFF

Professors: prof. Ing. Dušan Krokavec, CSc.
Dr.h.c. mult. prof. Ing. Ladislav Madarász, PhD.
prof. RNDr. Eva Ocelíková, CSc.
prof. Ing. Ján Paralič, PhD.
prof. Ing. Tomáš Sabol, CSc.
prof. Ing. Ján Sarnovský, CSc.
prof. Ing. Peter Sinčák, CSc.
prof. Ing. Iveta Zolotová, CSc.

Associate Professors: doc. Ing. Peter Butka, PhD.
doc. Ing. Anna Filasová, CSc.
doc. Ing. Anna Jadlovská, PhD.
doc. Ing. Ján Jadlovský, CSc.
doc. Ing. Marián Mach, CSc.
doc. Ing. Kristína Machová, CSc.

Assistant Professors: Ing. František Babič, PhD.
Dr. Ing. Vratislav Hladký
Ing. Rudolf Jakša, PhD.
Ing. Ján Liguš, PhD.
Ing. Jana Ligušová, PhD.
Ing. Martin Sarnovský, PhD.
Dr. Ing. Ján Vaščák

Researchers: Ing. Marek Bundzel, PhD.
Ing. Jozef Wagner, PhD.
Ing. Gabriel Tutoky, PhD.

Technical Staff: Tatiana Baňasová
Renáta Giannusis

Ph.D. Students:

1st. **Internal**
Ing. Ján Čabala
Ing. Jakub Hvizdoš
Ing. Martin Mikula
Ing. Martin Miškuf
Ing. Miroslava Muchová
Ing. Jaroslav Ondo
Ing. Matej Oravec

2nd. **Internal** **External**
Ing. Tomáš Cádrik Ing. Miloš Ľos
Ing. Michal Kopčík Ing. Mousa Younes Alfitorey

Ing. Tomáš Lojka
Ing. Gergely Magyar
Ing. Ladislav Nyulászi
Ing. Michal Puheim
Ing. Eva Turňová

3^{rd.}

Internal

Ing. Jakub Čerkala
Ing. Cecília Havrilová
Ing. Pavol Liščinský
Ing. Daniel Lorenčík
Ing. Peter Michalik
Ing. Martina Tarhaničová

External

Ing. Matúš Molčányi

4^{th.}

Internal

Ing. Vladimír Gašpar
Ing. Slávka Jadlovská
Ing. Alexandra Lukáčová
Ing. Martin Paľa
Ing. Peter Papcun
Ing. Vladimír Serbák
Ing. Ján Štofa

5^{th.}

Internal

Ing. Mgr. Peter Koncz

External

Ing. Stanislav Dvorščák
Ing. Peter Kubičko

3 LABORATORIES

- CyberEduCentre - <http://cybereducentre.fe.i.tuke.sk/cybereducentre/index.html>
- CyberVirtLab - <http://cybervirtlab.fe.i.tuke.sk/CyberVirtLab/>
- Laboratory of Intelligent Control Network and Software Systems for Control (L-509b), <http://cybereducentre.fe.i.tuke.sk/L509/>
- Laboratory of Cybernetics (L-513) <http://web.tuke.sk/kybernetika/labaky/L513/>
- Laboratory of Distributed Control Systems - ROCKWELL AUTOMATION LABORATORY (L-536), <http://lara.fe.i.tuke.sk/en/>
- Center for Intelligent Technologies: Laboratory of Autonomous Systems (LAS-CIT), Laboratory of Humanoid Robots (LHR-CIT) <http://www.ai-cit.sk>
- Research Center of Modern Control Techniques and Industrial Informatics – CMCT_II (<http://kyb.fe.i.tuke.sk>)
- Laboratory of Production Lines and Image Recognition (V147 - CMCT_II) <http://kyb.fe.i.tuke.sk/laben/miest/V147.php>
- Laboratory of Process Control (V144 - CMCT_II) <http://kyb.fe.i.tuke.sk/Laboratoria/miest/V144.php>
- Laboratory of Mechatronics Systems (V142 - CMCT_II) <http://kyb.fe.i.tuke.sk/Laboratoria/miest/V142.php>
- Laboratory of Robotics (V134 - CMCT_II) <http://kyb.fe.i.tuke.sk/Laboratoria/miest/V134.php>
- Laboratory of Knowledge Technologies (V-101a)
- Laboratory of Computer Control Systems Design (V101b - CMCT_II),

<http://kyb.fe.i.tuke.sk/laben/miest/V101b.php>

- Laboratory of intelligent control systems of aircraft engines (in cooperation with Faculty of Aeronautics) <http://lirslm.fe.i.tuke.sk>
- Laboratory of Business processes (B11)

4 TEACHING

4.1. Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
Computers and Algorithms	2 nd	2/2	Jadlovská, Jadlovský
Introduction to Business Informatics	2 nd	2/2	Paralič, J.
Elements of Control Systems	2 nd	2/2	Hladký
Artificial Intelligence I.	2 nd	2/2	Machová
Simulation systems in Business Informatics	2 nd	2/2	Jadlovská, Hladký
Foundations of Automatic Control	3 rd	2/2	Madarász
Simulation Systems	3 rd	2/2	Jadlovská
Artificial Intelligence II.	3 rd	2/2	Sinčák, et al.
Knowledge-Based Systems	3 rd	2/2	Machová
Office Information Systems	3 rd	1/2	Zolotová
Applications of Operation Systems in Management	3 rd	2/2	Liguš
Application Programming	3 rd	2/2	Jakša
Analyses and design of Information Systems	4 th	1/2	Sarnovský M., Babič
Control of Technological Processes	4 th	2/2	Liguš
Control and Visualization Systems	4 th	2/2	Zolotová
Identification and Modeling	4 th	2/2	Filasová
Linux I.	4 th	2/2	Jakša
Computer Tools for Technological Systems Control	4 th	2,2	Jadlovský
Applications of Artificial Intelligence	4 th	0/2	Sinčák
Scheduling and Logistics	4 th	2/2	Paralič, J.
Application programming	4 th	0/2	Jakša
Computer (Based) Control	5 th	2/2	Krokavec
Database Management System Applications	5 th	2/2	Ocelíková
Protocols and Interfaces	5 th	2/2	Jadlovský
Project Management	5 th	2/2	Sabol, Babič
Cybernetics and Management	6 th	2/2	Sarnovský, J.
System Analysis and Synthesis	6 th	2/2	Madarász
Artificial Intelligence Languages	6 th	2/2	Mach
Management in practice	6 th	2/2	Babič
Heuristic Optimization Processes	6 th	2/2	Mach

4.2. Graduate Study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
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Optimal and Nonlinear Systems	1 st	2/2	Jadlovská, A.
Computer Vision	1 st	2/2	Bundzel
Intelligent Control Networks	1 st	2/2	Liguš
Knowledge Discovery	1 st	2/2	Paralič, J.
Information Systems for Business Processes	1 st	2/2	Zolotová
Discrete-time Systems	1 st	3/2	Krokavec, D.
Theoretical Foundations of Artificial Intelligence	1 st	2/2	Sinčák
Symbolic Artificial Intelligence	1 st	2/2	Mach
IT Environment Control	1 st	2/2	Sarnovský M., Furdík
Online Identification	1 st	2/2	Krokavec
Logic Control	1 st	2/2	Liguš
XML Technologies	1 st	1/2	Mach
Distributed Control Systems	2 nd	2/2	Jadlovský
Control and Artificial Intelligence	2 nd	2/2	Jadlovská
Robust Control	2 nd	2/2	Filasová
Evolutionary Algorithms	2 nd	2/2	Mach
Multicriterial Decision Making	2 nd	2/2	Ocelíková
Machine Learning	2 nd	2/2	Machová
Stochastic Systems	2 nd	2/2	Krokavec, D.
Fuzzy Decision Making	2 nd	2/2	Vaščák
Complexity and Decision Making	2 nd	2/2	Madarász
Engineering econometrics	2 nd	2/2	Krokavec
Speech Recognition	2 nd	2/2	Krokavec, D.
Intelligent Sensor Systems	2 nd	2/2	Krokavec, D.
Interactive Systems	2 nd	2/1	Jakša
Integrated manufacturing systems	3 rd	3/2	Madarász
Humanoid Technologies	3 rd	2/2	Jakša
Dynamic Systems Diagnostics	3 rd	2/2	Krokavec, D.
Complex Systems Control	3 rd	2/2	Hladký
Management Information Systems	3 rd	2/2	Jadlovský
Complexity and Decision Making	3 rd	2/2	Madarász
Semantic and Social Web	3 rd	2/2	Machová
Neuro-fuzzy Systems	3 rd	2/2	Vaščák
Cybernetics	3 rd	2/2	Sarnovský, J.
Knowledge Management	3 rd	2/2	Paralič, J.
Philosophic Problems of Cybernetics and AI	4 th	2/2	Sarnovský, J.
Repetition of AI Foundations	4 th	0/2	Sinčák
AI Applications Seminar	4 th	2/2	Sinčák

5 RESEARCH PROJECTS

- **Semantic keyword-based search on structured data sources (KEYSTONE)**, COST Action IC-1302, European Cooperation in Science and Technology, duration: 2014 – 2017, members from our department: Peter Butka (Management Committee member for Slovakia)
- **Autonomous Control for a Reliable Internet of Services (ACROSS)**, COST Action IC-1304, European Cooperation in Science and Technology, duration: 2013 – 2016, members from our department: Peter Bednár (Management Committee member for Slovakia)

- The Technical University was accepted as a full member of the **ALICE experiment** at the European Organization for Nuclear Research (CERN) on September 1st, 2014. This will provide an opportunity for direct participation in the research and development of the “**Upgrade of the Alice Inner Tracking System**”, planned for installation in the second long LHC shutdown in the years 2018-2019. The research team led by Ján Jadlovský (Team leader TUKE) is actually composed of members from our department: Anna Jadlovská, Slávka Jadlovská, Peter Papcun, Jakub Čerkala, Michal Kopčík, Matej Oravec, Ján Čabala, (duration: 2014-2018)
- **Cognitive travelling in digital space of the Web and digital libraries supported by personalized services and social networks** (project lead by FIIT STU Bratislava). Slovak Research and Development Agency, project no. APVV-0208-10, duration: 2011 – 2014, members: Ján Paralič (project leader for TUKE), Peter Butka, Peter Koncz, František Babič, Gabriel Tutoky
- **Dynamic hybrid architectures in multiagent network control systems**, Scientific Grant Agency project No. 1/0286/11, duration: 2011 – 2014, members: Ján Sarnovský (project leader), Ján Liguš, Ján Jadlovský, Anna Jadlovská, Iveta Zolotová, Eva Ocelíková, Jana Ligušová, Peter Karch, Slávka Jadlovská, Peter Papcun, Jakub Čerkala, Štefan Jajčišin and Michal Kopčík
- **Digital control of complex systems with two degrees of freedom**, Scientific Grant Agency project No. 1/0298/12, duration: 2012 – 2014, members: Ladislav Madarász (project leader), František Adamčík (project vice leader), Rudolf Andoga (project vice leader), Ladislav Főző, Tobiáš Lazar, Jozef Považan, Marián Hocko, Ján Kabát, Jozef Judičák, Ján Kolesár, Milan Seman, Vladimír Gašpar, Vratislav Hladký, Ján Labun, Peter Malatin, Michal Puheim, Ladislav Nyulászi, Maroš Komjátý, Marek Češkovič and Róbert Bréda
- **Incremental learning methods for intelligent systems**, Scientific Grant Agency project No. 1/0667/12, duration: 2012 – 2015, members: Peter Sinčák (project leader)
- **Methods for analysis of collaborative processes mediated by information systems**, Scientific Grant Agency project No. 1/1147/12, duration: 2012 – 2015, members: Ján Paralič (project leader), František Babič, Kristína Machová, Martin Sarnovský, Peter Butka, Karol Furdík, Gabriel Tutoky, Jozef Wagner, Martin Repka, Peter Koncz, Adela Tušanová, Alexandra Lukáčová, Ján Štofa, Cecília Havrilová, Eva Turňová, Miroslava Muchová, Martin Mikula
- **Resident core of active reconfigurable control systems**, Scientific Grant Agency project No. 1/0348/14, duration: 2014 – 2016, members: Dušan Krokavec (project leader), Filasová Anna, Hladký Vratislav
- **Integration of study programs Cybernetics and Artificial Intelligence**. Cultural and Education Grant Agency Project No. 034TUKE-4/2014, duration 2014 – 2016, members: Ján Vaščák (project leader), Anna Jadlovská, Mária Virčíková, Rudolf Jakša, Peter Sinčák, Marián Mach, Kristína, Machová
- **CyberLabTrainSystem - Demonstrator and Trainer of Information - Control Systems**. Cultural and Education Grant Agency Project No. 021TUKE-4/2012, duration 2012 – 2014, members: Iveta Zolotová (project leader), Anna Jadlovská, Eva Ocelíková, Ján Jadlovský, Ján Sarnovský, Vratislav Hladký, Ján Liguš, Jana Ligušová, Peter Karch, Roman Mihal', Peter Kubičko, Štefan Jajčišin, Slávka

Jadlovská, Peter Michalik, Jakub Čerkala, Lukáš Laciňák, Michal Kopčík

- ***Progressive methods of education in the area of control and modeling of complex systems object oriented on aircraft turbo-compressor engines***, Cultural and Education Grant Agency Project No. 018TUKE-4/2012, duration 2012 – 2014, members: Ladislav Madarász (project leader), Rudolf Andoga (project vice leader), František Adamčík, Ladislav Fózó, Tobiáš Lazar, Jozef Považan, Marián Hocko, Ján Kabát, Jozef Judičák, Ján Kolesár, Milan Seman, Vladimír Gašpar, Ján Labun, Peter Malatin, Michal Puheim, Ladislav Nyulászi, Maroš Komjátý, Marek Češkovič and Róbert Bréda
- **University Science Park TECHNICOM for Innovation Applications Supported by Knowledge Technology**, ITMS: 26220220182, supported by the Research & Development Operational Programme funded by the ERDF. Three pilot projects are performed at our department:
 - PP4: IT tools and services for analysis of various types of processes, Ján Paralič - pilot project leader, members: František Babič, Jozef Wagner, Gabriel Tutoky, Martin Sarnovský, Peter Butka, Alexandra Lukáčová, Peter Koncz, Vladimír Gašpar, Cecília Havrilová, Michal Puheim
 - PP6: Use of artificial intelligence in intelligent systems, Peter Sinčák - pilot project leader
 - PP7: Center for Nondestructive Diagnostics of Technological Processes Using Standard Software for Control and Communication, Ján Jadlovský - pilot project leader, members: Ján Sarnovský, Anna Jadlovská, Iveta Zolotová, Slávka Jadlovská, Peter Papcun, Jakub Čerkala, Michal Kopčík, Matej Oravec, Ján Čabala
- ***Support Patients through e-Services Solutions***, project no. 3CE286P2 supported by Central Europe Programme funded by ERDF, duration: 2011 – 2014, members from our department: František Babič (project leader), Jozef Wagner, Gabriel Tutoky

6 **CO-OPERATION**

6.1. **Co-operation in Slovakia**

- Department of Automatic Control Systems Bratislava, Slovak University of Technology, Bratislava
- Institute of Intelligent Systems, Faculty of Informatics, Slovak University of Technology, Bratislava
- Faculty of informatics and information technologies, Slovak University of Technology in Bratislava
- Institute of Computer Science, Slovak Academy of Sciences in Bratislava
- Department of Biophysics IEP Slovak Academy of Science
- Institute of Computer Science, University of P.J. Šafárik, Košice
- Institute of Experimental Physics, Slovak Academy of Sciences
- Department of applied informatics (Centre for Cognitive Science), Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava
- Košice self-governing region
- The City of Košice

- Tatrabanka, a.s.
- IT Valley Kosice
- US Steel Košice

6.1.2. Visitors to the Department

- doc. Ing. Dalibor Fiala, PhD., Ing. Martin Dostal, ZČU Plzeň, ČR, 29.6-4.7.2014

6.2. International Co-operation

- Department of Software Engineering and Interactive Systems, Vienna University of Technology, Austria
- University of Regensburg, Germany
- University of Dortmund, Germany
- Waseda University, Tokyo, Japan
- Technical University of Czestochowa
- Tokyo Institute of Technology, Japan
- Kyushu Institute of Technology, Japan
- Université Joseph Fourier Grenoble, IUT 1 (Institut Universitaire de Technologie 1), Grenoble, France
- Heudiasyc UMR CNRS 6599, UTC, Compiègne, France
- Université Henri Poincaré, Laboratoire CRAN (Centre de Recherche en Automatique de Nancy), Nancy 1, France
- Department of Informatics, Technical University, Ostrava, Czech Republic
- Department of Control Systems and Instrumentation, Faculty of Mechanical Engineering Technical University of Ostrava, Czech Republic
- Department of Cybernetics, Czech Technical University Prague, Czech Republic
- Department of Control Engineering, Czech Technical University, Prague, Czech Republic
- Institute of Information Theory and Automation, Academy of Sciences of Czech Republic, Prague, Czech Republic
- Department of Information Engineering, Faculty of Economics and Management, Czech University of Agriculture, Prague, Czech Republic
- University of Hradec Králové, Czech Republic
- Dept. of Computer Science and Engineering, Faculty of Applied Sciences, University of West Bohemia, Plzeň
- Faculty of Mechanical Engineering, Department of Automation, Institute of Information, University of Miskolc, Hungary
- Óbuda University, Budapest, Hungary
- Budapest University of Technology and Economics, Hungary
- Hungarian Academy of Sciences, Computer and Automation Research Institute, Hungary
- Regional Association of the Hungarian Academy of Sciences, Miskolc, Hungary

6.2.1. Visits of Staff Members to Foreign Institutions

- P. Sinčák, Budapešť, Viedeň, Maďarsko, Rakúsko, 8.-11.1.2014
- M. Bundzel, Luxemburg, Luxembursko, 5.-7.2.2014
- R. Jakša, Ostrava, ČR, 6.-7.2.2014
- K. Machová, Nice, Francúzsko, 23.2.-1.3.2014
- P. Sinčák, Bielefeld, Bremen, Nemecko, 1.-9.3.2014

- G. Magyar, Dortmund, Nemecko, 2.-7.3.2014
- M. Bundzel, Rovereto, Taliansko, 11.-14.3.2014
- J. Jadlovský, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- M. Čopík, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- S. Jadlovská, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- P. Papcun, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- J. Čerkala, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- M. Kopčík, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- J. Liguš, Valletta, Malta, 26.-30.3.2014
- J. Ligušová, Valletta, Malta, 26.-30.3.2014
- P. Butka, Olomouc, ČR, 7.-10.4.2014
- L. Madarász, Budapešť, Maďarsko, 24.-25.4.2014
- J. Paralič, Plzeň, ČR, 20.-22.5.2014
- P. Koncz, Plzeň, ČR, 20.-22.5.2014
- C. Havrilová, Plzeň, ČR, 20.-22.5.2014
- P. Sinčák (+12 ďalších), Miškoc, Maďarsko, 12.-13.6.2014
- C. Havrilová, Madrid, Španielsko, 21.-28.6.2014
- P. Michalik, Madrid, Španielsko, 22.-28.6.2014
- R. Jakša, Ostrava, ČR, 23.-24.6.2014
- D. Krokavec, Štrasburg, Francúzsko, 23.-28.6.2014
- T. Cádrik, Brno, ČR, 24.-27.6.2014
- M. Puheim, Tihany, Maďarsko, 3.-5.7.2014
- T. Lojka, Grenoble, Francúzsko, 6.-11.7.2014
- T. Lojka, Thira, Grécko, 17.-23.7.2014
- M. Tarhaničová, Lisabon, Portugalsko, 21.-30.7.2014
- J. Štofa, Trento, Taliansko, 26.7.-10.8.2014
- D. Krokavec, Cape Town, JAR, 22.-31.8.2014
- R. Jakša, Viedeň, Rakúsko, 31.8.-3.9.2014
- J. Paralič, Mníchov, Nemecko, 1.-5.9.2014
- M. Sarnovský, Karlsruhe, Nemecko, 1.-5.9.2014
- F. Babič, Wroclaw, Poľsko, 16.-19.9.2014
- A. Lukáčová, Wroclaw, Poľsko, 16.-19.9.2014
- P. Sinčák, Budapešť, Maďarsko, 7.-9.9.2014
- M. Sarnovský, Drážďany, Nemecko, 30.9.-2.10.2014
- V. Gašpar, Antibes, Francúzsko, 6.-11.10.2014
- D. Krokavec, Antibes, Francúzsko, 6.-11.10.2014
- A. Filasová, Antibes, Francúzsko, 6.-11.10.2014
- P. Butka, Riva del Garda, Taliansko, 16.-19.10.2014
- L. Nyulászi, Brno, ČR, 21.-24.10.2014
- P. Bednár, Larnaka, Cyprus, 22.-24.10.2014
- P. Sinčák, Kitakyushu, Japonsko, Čína, 25.10.-12.11.2014
- M. Virčíková, Kitakyushu, Japonsko, Čína, 25.10.-12.11.2014
- J. Ondo, Peking, Čína, 3.-11.11.2014
- R. Jakša, Kitakyushu, Japonsko, 30.11.-10.12.2014
- T. Cádrik, Kitakyushu, Japonsko, 30.11.-10.12.2014
- L. Madarász, Budapešť, Maďarsko, 20.-21.11.2014
- V. Gašpar, Budapešť, Maďarsko, 19.-21.11.2014
- L. Nyulászi, Budapešť, Maďarsko, 19.-21.11.2014

- M. Puheim, Budapešť, Maďarsko, 19.-21.11.2014
- D. Krokavec, Berlín, Nemecko, 12.-15.11.2014
- P. Liščinský, Berlín, Nemecko, 12.-15.11.2014
- V. Serbák, Berlín, Nemecko, 12.-15.11.2014
- D. Krokavec, Budapešť, Maďarsko, 20.-21.11.2014
- J. Ondo, Orebro, Švédsko, 6.-14.12.2014
- G. Tutoky, Plzeň, ČR, 1.-11.12.2014

6.3. Membership in International Organizations and Societies

- Jakša, R.: IEEE, Computational Intelligence Society
- Krokavec, D.: Member of the International Federation of Automatic Control IFAC Technical Committee TC 1.4 Stochastic Systems
- Liguš, J.: EAEIE – European Association for Education in Electrical and Information Engineering
- Madarász, L.: Doctor honoris causa, University of Miskolc (2009)
- Madarász, L.: Honorary professor, Óbuda University Budapest, Hungary (2009)
- Madarász, L.: Honorary Member of the Board of Hungarian Academy of Sciences (2000)
- Madarász, L.: Chairmanship member of the Technical Section, Association of Hungarian Professors (2001)
- Madarász, L.: Honorary Professor, Bánky Donát Polytechnic, Budapest, Hungary (1999)
- Madarász, L.: Membership of Associate Editors, Acta Polytechnica Hungarica, Budapest Tech, Hungary (2004)
- Madarász, L.: Honorary Membership in Hungarian Fuzzy Association, Budapest Hungary (2002)
- Madarász, L.: American Biographical Institute, Gold Record of Achievement, Control of Large Scale Systems, USA (1997)
- Madarász, L.: The American Biographical Institute, The Research Board of Advisors (1996)
- Madarász, L.: Honorary Fellow of microCAD The University of Miskolc (2005)
- Ocelíková, E.; Sinčák, P.; Zolotová, I.: CPRS - Czech Pattern Recognition Society
- Ocelíková, E.: CSSS - Czech and Slovak Society for Simulation
- Machová, K.: ACM – Association of Computer Machinery
- Paralič, J.: ACM – Association of Computer Machinery, IEEE
- Sabol, T.: Information Society Technologies Program Committee (IST PC), 5th Framework Program, Brussels
- Sarnovský, J.: IEEE
- Sarnovský, J.: INES - International Network of Engineers and Scientists for Global Responsibility
- Sarnovský, J.: Principia Cybernetica Web PRNCYB-L
- Sarnovský, J.: SWISS - Supplementary Ways for Improving International Stability
- Sinčák P.: European Society of Neural Networks
- Sinčák P.: IEEE, Computational Intelligence Society
- Vaščák, J.: IEEE, Computational Intelligence Society
- Zolotová, I.: IEEE, Education Society
- Zolotová, I.: EAEIE – European Association for Education in Electrical and Information Engineering

6.4. Membership in Slovak Organizations and Societies

- The whole Department of Cybernetics and Artificial Intelligence is a team member of:
 - Slovak Society for Cybernetics and Informatics
 - Slovak AI Society
- Filasová, A.: Slovak Society for Cybernetics and Informatics
- Krokavec, D.: Slovak Electrical Engineering Society
- Madarász, L.: Slovak Society for Cybernetics and Informatics
- Jadlovská, A; Ocelíková, E.; Sarnovský, J.: Slovak Society for Cybernetics and Informatics
- Paralič, J.: Slovak Society for Computer Science
- Sabol, T.: Board of the Open Society Fund, Bratislava

6.5. International Networks and Exchange Programs

- SALEIE, Strategic Alignment of Electrical and Information Engineering in European Higher Education Institutions, Reference number: 527877-LLP-1-2012-1-UK-ERASMUS-ENW. Contact persons: Ján Liguš, Iveta Zolotová, Jana Ligušová.
- OI-Net, European Academic Network for Open Innovation, Reference number: 542203-LLP-1-2013-1-FI-ERASMUS-ENW- Iveta Zolotová
- Socrates - Erasmus agreement between TU of Košice and Czech University of Life Sciences, Prague, Czech Republic. Contact person: Eva Ocelíková
- Socrates - Erasmus agreement between TU of Košice and Université Henri Poincaré, Nancy 1, France, Contact person: Ján Sarnovský
- Socrates - Erasmus agreement between TU of Košice and University Hradec Kralove, Czech Republic. Contact person: Ján Vaščák
- Socrates - Erasmus agreement between TU of Košice and Univesite de Technologie Compiègne, France, Contact person: Ján Liguš
- Socrates - Erasmus agreement between TU of Košice and Institut Universitaire de Technologie 1 de Grenoble 1, France, Contact person: Jana Ligušová

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	93	139	3

8 OTHER ACTIVITIES

- [SAMI 2014](#) (IEEE 11th International Symposium on Applied Machine Intelligence and Informatics) has been held January 23 - 25, 2014 in Herľany, Slovakia
- Meeting for Departments of Automation, Cybernetics, Artificial Intelligence and Computer Science in Slovakia and Czech Republic, September 10-11, 2014 in Poprad ([web page of this meeting](#))
- [CINTI 2014](#) (15th IEEE International Symposium on Computational Intelligence and Informatics) has been co-organized on November 19-21, 2014 in Budapest, Hungary
- L. MADARÁSZ - Order of Merit of the Republic of Hungary, Civil Officer's Cross,

The highest State Order of Hungary, Hungarian Consulate in Košice, Košice, March 7, 2014

- L. MADARÁSZ – Dr. h.c. Óbuda University, Budapest, Hungary, November 21, 2014
- Our PhD student Martin Pala with his team won Startup Awards 2014 competition in category Society ([see more information](#))

9 PUBLICATIONS

9.1. Book chapters

- [1] GAŠPAR, Vladimír - MADARÁSZ, Ladislav - ANDOGA, Rudolf: Scientific Research Information System as a Solution for Assessing the Efficiency of Applied Research. In: Advances in Soft Computing, Intelligent Robotics and Control : Topics in Intelligent Engineering and Informatics 8. - Switzerland : Springer International Publishing, 2014 P. 273-293. - ISBN 978-3-319-05944-0 - ISSN 2193-9411

9.2. Journals

- [2] BUTKA, Peter - PÓCS, Jozef - PÓCSOVÁ, Jana: On equivalence of conceptual scaling and generalized one-sided concept lattices. In: Information Sciences. Vol. 259 (2014), p. 57-70. - ISSN 0020-0255
- [3] KROKAVEC, Dušan - FILASOVÁ, Anna: H-infinity enhanced control design of discrete-time Takagi-Sugeno state-multiplicative noisy systems. In: Mathematical Problems in Engineering. Vol. 2014 (2014), p. 1-12. - ISSN 1024-123X
- [4] SINČÁK, Peter - ONDO, Jaroslav - KÁPOSZTÁSÓVÁ, Daniela - VIRČÍKOVÁ, Mária - VRANAYOVÁ, Zuzana - SABOL, Jakub: Artificial Intelligence in Public Health Prevention of Legionellosis in Drinking Water Systems / Peter Sinčák ... [et al.] - 2014. In: International Journal of Environmental Research and Public Health. Vol. 11, no. 8 (2014), p. 8597-8611. - ISSN 1660-4601
- [5] ABELEV, B. - ADAM, J. - ADAMOVA, D. - AGGARWAL, M.M. - RINELLA, G.A. - JADLOVSKÝ, Ján - VALA, Martin: Technical Design Report for the Upgrade of the Alice Inner Tracking System / ALICE Collaboration - 2014. In: Journal of Physics G: Nuclear and Particle Physics. Vol. 41, no. 8 (2014), p. 87002-87002. - ISSN 0954-3899
- [6] RÁSTOČNÝ, Karol - FRANEKOVÁ, Mária - ZOLOTOVÁ, Iveta - RÁSTOČNÝ, jr., Karol: Quantitative Assessment of Safety Integrity Level of Message Transmission between Safety-Related Equipment / Karol Rástočný ... [et al.] - 2014. In: Computing and Informatics. Roč. 33, č. 2 (2014), s. 343-368. - ISSN 1335-9150
- [7] MACHOVÁ, Kristína - MARHEFKA, Lukáš: Opinion Classification in Conversational Content Using N-grams. In: Recent Developments in Computational Collective Intelligence : Studies in Computational Intelligence. Vol. 513 (2014), p. 177-186. - ISBN 978-3-319-01787-7 - ISSN 1860-949X
- [8] FILASOVÁ, Anna - KROKAVEC, Dušan - SERBÁK, Vladimír: Control reconfiguration for one class of Takagi-Sugeno fuzzy SISO systems. In: Intelligent Systems in Technical and Medical Diagnostics : book series: Advances in Intelligent Systems and Computing. Vol. 230 (2014), p. 53-64. - ISSN 2194-5357
- [9] KROKAVEC, Dušan - FILASOVÁ, Anna: Robust residual generator design for systems with distributed time delay. In: Intelligent Systems in Technical and Medical Diagnostics : book series: Advances in Intelligent Systems and

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- [10] KROKAVEC, Dušan - FILASOVÁ, Anna - LIŠČINSKÝ, Pavol: Fault residual functions make use of linear quadratic control performances. In: Intelligent Systems in Technical and Medical Diagnostics: book series: Advances in Intelligent Systems and Computing. Vol. 230 (2014), p. 429-440. - ISSN 2194-5357
- [11] FRANKOVSKÝ, Peter - TREBUŇA, František - JADLOVSKÝ, Ján - PÁSTOR, Miroslav - KENDEROVÁ, Mária: Implementation of correction coefficients relevant for photoelastic coatings into the PhotoStress software. In: Applied Mechanics and Materials. Vol. 486 (2014), p. 26-31. - ISBN 978-303785977-3 - ISSN 1660-9636
- [12] BUTKA, Peter - PÓCS, Jozef - PÓCSOVÁ, Jana: Distributed version of algorithm for generalized one-sided concept lattices. In: Studies in Computational Intelligence. Vol. 511 (2014), p. 119-129. - ISSN 1860-949X
- [13] BUTKA, Peter - PÓCS, Jozef - PÓCSOVÁ, Jana: Basic theorem for generalized one-sided concept lattices. In: Applied Mathematical Sciences. Vol. 8, no. 10 (2014), p. 463-468. - ISSN 1312-885X
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- [15] JADLOVSKÝ, Ján - JADLOVSKÁ, Anna - SARNOVSKÝ, Ján - JAJČIŠIN, Štefan - ČOPÍK, Matej - JADLOVSKÁ, Slávka - PAPCUN, Peter - BIELEK, Radoslav - ČERKALA, Jakub - KOPČÍK, Michal - CHOCHULA, Peter - AUGUSTINUS, Andre: External Access to ALICE Controls Conditions Data. In: Journal of Physics : Conference Series (JPCS). Vol. 513 (2014), p. 1-5. - ISSN 1742-6588
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- [23] VAŠČÁK, Ján - MICHNA, Roman: Learning of Fuzzy Cognitive Maps by a PSO

- Algorithm for Movement Adjustment of Robots. In: Advances in Intelligent Systems and Computing : Emergent Trends in Robotics and Intelligent Systems. - Switzerland : Springer, 2014 Vol. 316 (2014), p. 155-162. - ISBN 978-3-319-10782-0 - ISSN 2194-5357
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- [32] VIRČÍKOVÁ, Mária - SINČÁK, Peter: Teach Your Robot How You Want It to Express Emotions : On the Personalized Affective Human-Humanoid Interaction. In: Advances in Intelligent Systems and Computing : Emergent Trends in Robotics and Intelligent Systems. - Switzerland : Springer International Publishing, 2014 Vol. 316 (2014), p. 81-92. - ISBN 978-3-319-10782-0 - ISSN 2194-5357
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- [34] KLIMEŠOVÁ, Dana - KONOPÁSEK, Jan - OCELÍKOVÁ, Eva: Pyramidal Objects and Comparing Objects Using Similarity Measures / Dana Klimešová, Jan Konopásek, Eva Ocelíková - 2014. In: International Journal of Mathematical

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- [37] VIRČÍKOVÁ, Mária - MAGYAR, Gergely - PALA, Martin - GAMEC, Ján - SINČÁK, Peter: Od priemyselných robotov k servisným a spoločenským robotom (6). In: ATP Journal. Roč. 21, č. 1 (2014), s. 42-44. - ISSN 1335-2237
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- [46] HLADKÝ, Vratislav - MUCHOVÁ, Miroslava: Návrh a simulácia riadenia vybranej cestnej križovatky. In: Transfer inovácií. Č. 29 (2014), s. 267-272. - ISSN 1337-7094

9.3. Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	25	79	5