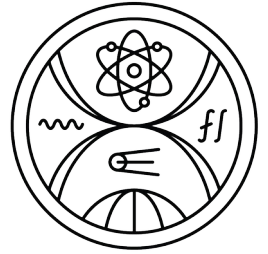


Middle European
interdisciplinary
master's programme in
Cognitive Science



Courses and research in cognitive science in Bratislava

Centre for Cognitive Science

Faculty of Mathematics, Physics and Informatics
Comenius University in Bratislava

December 2nd, 2022



A few facts from CogSci history in Bratislava

- Late 1990s – one-day seminars (prof. Kvasnička)
- 1st Slovak monography on cognitive science: Beňušková Ľ. et al.: *Quest for a Common Language in Cognitive Sciences* (in Slovak), Kalligram, 2000.
- 1st Slovak textbook - Rybár J., Beňušková Ľ., Kvasnička V. (eds.): *Kognitívne vedy* (Cognitive Sciences), Kalligram Bratislava 2002.
- Rybár J., Kvasnička V., Farkaš I. (eds.): *Jazyk a kognícia* (Language and Cognition), Kalligram Bratislava 2005.
- Kvasnička V., Trebatický P., Pospichal J., Kelemen J. (eds). *Myseľ, inteligencia a život* (Mind, intelligence and life). STU in Bratislava, 2007.
- Kvasnička V., Kelemen J., Pospichal J. (eds). *Modely mysle* (Models of the mind). Európa Bratislava, 2008

- Annual Czech-Slovak conference *Cognition and Artificial Life* (since 2001)
- CogSci programme at Comenius University – since 2007, in English since 2016
- Slovak cogsci history also on [wiki \(kognitívna veda\)](#)

Centre for Cognitive Science

People at the faculty (FMPI)

- [Farkaš Igor](#) – cogsci and AI
- [Takáč Martin](#) – cogsci and AI
- [Malinovská Kristína](#) – AI & cog. robotics
- [Cimrová Barbora](#) – cogsci, EEG
- [Gál Tomáš](#) – ethics, AI, ...
- [Slavíčková Mária](#) – math for cogsci
- [Zlatoš Pavol](#) – logic for cogsci
- PhD students: [M. Fandl](#), [I. Bečková](#), [Š. Pócoš](#), ...

Other faculties of Comenius University

- [Ostatníková Daniela](#), prof., Faculty of Medicine, hormones, cognition & autism
- [Višňovský Emil](#), prof., Faculty of Philosophy, philosophy of action, of AI
- [Cséfalvay Zsolt](#), prof., Faculty of Education, communication disorder

Slovak Academy of Sciences (SAS), Bratislava

- [Rosipal Roman](#) – Inst. of Measurement Science, EEG/BCI, cognitive neuroscience
- [Riečanský Igor](#), [Marko Martin](#) – Inst. of Normal and Pathological Physiology
- [Čavojová Vladimíra](#), [Šrol Jakub](#) – Inst. of Exper. Psychology
- [Urban Kamila](#), [Poslon Xenia](#) – Inst. for Research in Social Communication

Other universities

- [Sýkora Peter](#), prof., UCM Trnava, bioethics
- [Tomašková Silvia](#), prof., Nitra, philosophy of mind, consciousness
- [Špajdel Marián](#), doc., Trnava, cog. neurosci.

cogsci.fmph.uniba.sk

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Centre for Cognitive Science

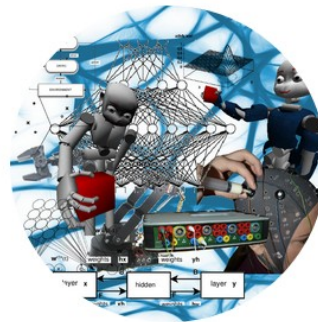


Middle European
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Cognitive Science



Master programme

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Incoming [Mobility](#) Students
[MEi:CogSci Bratislava Homepage](#)



Research

[People](#) of Centre for Cognitive Science
[CNC](#) Research Group
Cognitive Science [Seminar](#)
[Technical Reports](#) in Cognitive Science



Community

[SSKV](#): Slovak Society for Cognitive Science
[MEi:CogSci Bratislava](#) on [Facebook](#)
Students and alumni group on [Facebook](#)
Cognitive Science [Blog](#)
[MEi:CogSci Alumni](#)

Igor



Martin



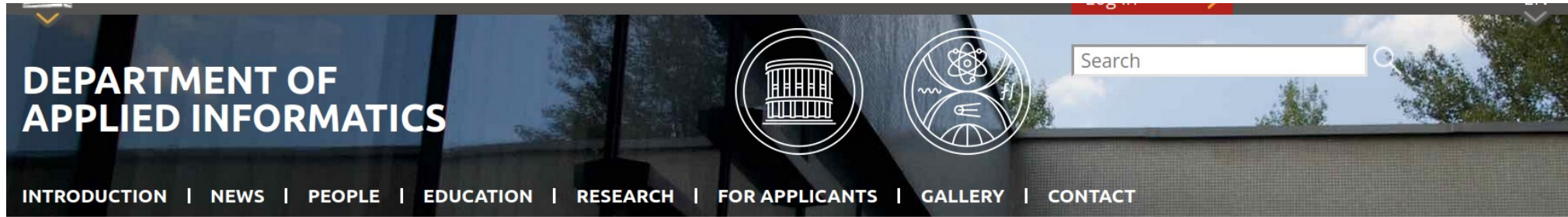
Kristína



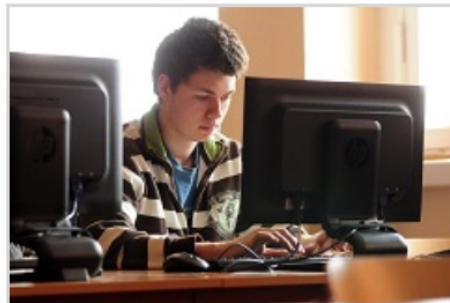
Barbora



The base of MEi:CogSci programme



TERAIS OPENING SEMINAR
DECEMBER 7, 2022



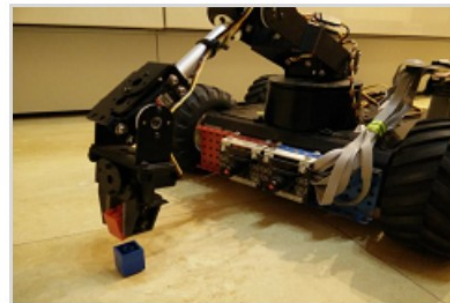
EDUCATION

[Bachelor program in Applied Informatics](#)

[Master program in Applied Informatics](#)

[Master program in Cognitive Science](#)

[Academic support center](#)



RESEARCH

[Computer Graphics and Vision](#)

[Artificial Intelligence and Computational Modelling](#)

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UNISPACE



Akú metódu vývoja produktov používal Steve Jobs? Ukážeme ti Lean Six Sigma

Prednáška 30.11. o 17:00

Unispace FMFI UK

✓ Pizza a nápoje



MatFyz je In
v pondelok



Príď si dať pizzu a spoznať svetoznámu metodológiu na

Courses in Bratislava

- New Trends in Cognitive Science (obligatory)
 - Cognitive Semantics ... (M. Takáč)
 - Grounded Cognition (I. Farkaš)
- Elective courses
 - Mathematics for Cognitive Science (M. Slavíčková)
 - Introduction to Programming (in Python) (K. Malinovská)
 - Introduction to Robotics (P. Petrovič)
 - Philosophy of AI (E. Višňovský)
 - ...
- See the programme **curriculum**
- **Catalogue** of Erasmus courses at the faculty

Our research in AI and CogSci

Cognition and Neural Computation group

MEi:CogSci



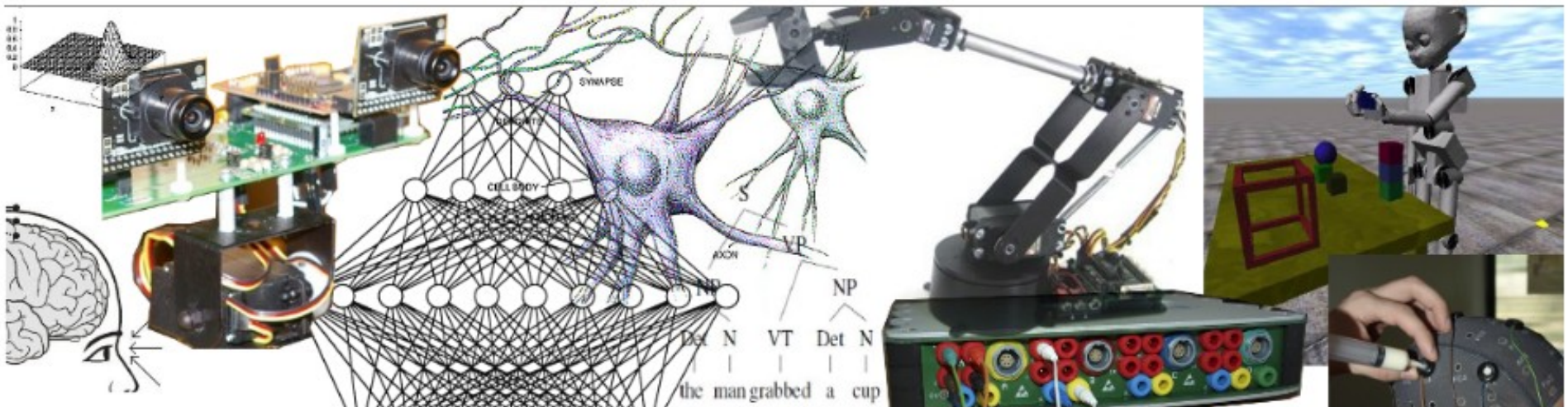
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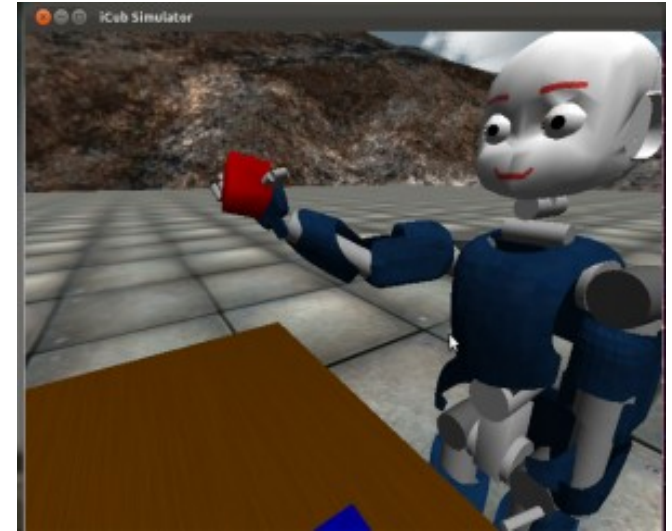


Research:

- computational modeling – of cognitive modeling (with neural networks), cognitive robotics, deep networks, computational analysis of neural network models
- experimental research – EEG/BCI, mixed reality, human-robot interaction

Computational modeling (incl. cog. robotics)

- Machine learning based on artificial neural networks – for vision, motor learning, memory, language, ...
- robotic simulators: e.g. iCub, CoppeliaSim Robotics, Open AI gym and robots: Jupiter & NICO,
- Human-Robot Interaction (new EU project)



Opportunities for experimental research

g.USBamp – USB Biosignal Amplifier



- multi-modal amplifier system
EEG, ECG, EMG, EOG, ...
respiration
other sensors
- simultaneous sample and hold
for all channels
- 16 analog inputs with 24 Bit, 38.4 kHz
per channel
- can be stacked for 32, 48, 64 channels
- fully DC coupled
- USB 2.0 interface
- FDA and CE approved



- New additions:
 - head-mounted eye-tracker
 - mixed reality glasses



Computational and cognitive neuroscience

Slovak Academy of Sciences

Institute of Measurement Science

Roman Rosipal, DrSc



- applied machine learning
- EEG/ERP → BCI
- sleep, neural correlates of working memory, vigilance, drowsiness and fatigue monitoring
- Neurorehabilitation in VR (new EU project)

Behavioral & cognitive neuroscience

Slovak Academy of Sciences, Bratislava

Institute of Normal and Pathological Physiology

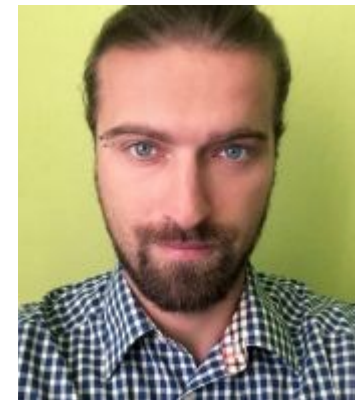
MUDr. Igor Riečanský, PhD.

- Behavioral neuroscience lab
- brain mechanisms of mental processes
- cognitive neuroscience, psychology, psychiatry



Mgr. Martin Marko, PhD.

- memory and semantic networks
- transcranial direct/alternating current stimulation (tDCS, tACS)



Developmental neuroscience

Slovak Academy of Sciences, Bratislava
Department of Neuroscience
Biomedical Research Center

&

Institute of Physiology, Faculty of Medicine
Comenius University in Bratislava

Doc. RNDr. Ján Bakoš, PhD.

- neuroscience
- neuroendocrinology
- neurobiology and brain physiology
- neuroplasticity



Experimental psychology

Slovak Academy of Sciences, Bratislava

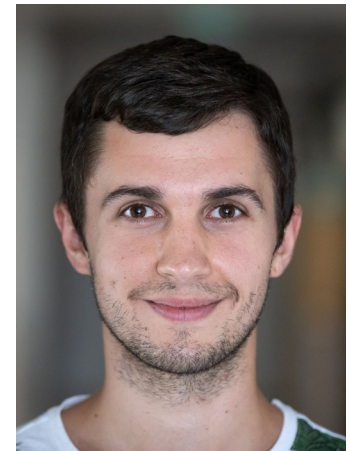
Institute of Experimental Psychology

Dr. Vladimíra Kurincová Čavojová

Dr. Jakub Šrol



- scientific reasoning, intuitive reasoning
- cognitive biases
- epistemically suspect beliefs
- climate change beliefs



Social psychology and cognition

Slovak Academy of Sciences, Bratislava

Institute for Research in Social Communications

Kamila Urban, PhD

- developmental psychology, metacognition, creativity, self-regulated learning



Xenia D. Poslon, PhD

- social psychology, inter-group relations, stereotypes and prejudice
- social cognition, political psychology



Philosophy (of anything :-)

Comenius University in Bratislava

Faculty of Philosophy

Prof. Emil Višňovský



- humanism, technology, modern society
- philosophy of action, of AI, of virtual reality

Philosophy of mind

Constantine the Philosopher University, Nitra

Department of Philosophy

Prof. Silvia Tomašková



- philosophy of mind, mind/body problem
- problem of consciousness, the self
- metaphorical language of the "inner self"
- mind in cognitive science

Our destination tonight – Hlavné námestie



Thank you for your attention!

Useful links

- Program director: Igor Farkaš, <http://cogsci.fmph.uniba.sk/~farkas/>
- Program coordinator for incoming students: Martin Takáč, <http://cogsci.fmph.uniba.sk/~takac/>
- Information for incoming students:
<http://cogsci.fmph.uniba.sk/meicogsciba/?action=mobilitystudents>
- Erasmus contact person at Faculty: patrik.kmetek@fmph.uniba.sk
- CogSci programme **curriculum** in Bratislava
- **Catalogue** of Erasmus courses provided by the Faculty