



University POLITEHNICA of Bucharest
Faculty of Automatic Control and Computers

Splaiul Independenței nr.313, sector 6, cod 060042,
Bucharest, ROMANIA



Prof. Cătălin Buiu

Ph.D. supervisor in Systems Engineering
Doctoral School Control and Computers
Politehnica University of Bucuresti

Contact:

Prof. Dr. Eng, Dr. Sc. Nat. Cătălin Buiu
University Politehnica of Bucharest
Faculty of Control and Computers
Department AIS
Splaiul Independentei, 313, room ED207, sector 6, 060042, Bucuresti
Romania
Tel: +40214029167, Fax: +40214029587
E-mail: catalin.buiu@acse.pub.ro
Web: catalin.buiu.net

Research profile:

Prof. Buiu is conducting research at the interface of engineering, robotics and natural sciences with the greater goal of a profound understanding of information processing and adaptation mechanisms at biological level and of using these mechanisms to develop software for artificial systems with advanced cognitive and interactive abilities, e.g. for humanoid robots. Prof. Buiu is devoting a special attention to the theory of brain-computer interfaces and their applications in developing highly efficient systems for assistive medicine and human-computer interaction.

The applications of the research conducted by Prof. Buiu and his co-workers refer to the control of swarm robotic systems, to user-humanoid robot interfaces, to programming of humanoid robots to act as social, adaptive, and interactive companions for children, to the development of robotic systems for printing living cells and to the use of natural computing

techniques in bioinformatics.

Ph. D. Supervisor since 2011;

- 2 finished thesis;
- 5 on-going theses;

Scientific publications: 17 monographies / book chapters; 103 journal and conference papers. **Research projects** (selection from the last 10 years):

- 2012-2016, ALLSKY, „*Audio-video station for automatic detection of meteors*”, PCCA
- 2013-2016, NEWSWARM, „*Bioinspired techniques for robotic swarms security*”, PCE
- 2008-2011, „*Development of biologically inspired integrated cognitive architectures*”, IDEI
- 2006-2008, 3DRoboVis, „*Development of an autonomous platform that is controlled by using a 3D virtual space generated using stereoscopic vision*”, CEEX

Member of scientific organizations and editorial boards

Member of IEEE, ACM; Academic Editor - PLOS ONE, Journal of Membrane Computing

Proposed research areas for Ph.D. students:

1. Children-humanoid robot interaction – new pedagogical scenarios: we aim at developing new ways for children to interact with humanoid robots using motion sensing devices, detection and recognition of emotions, gestures, and intentions. An example application is the interactive teaching of music using humanoid robots.
2. Multi-spectral and hyperspectral image classification techniques for precision agriculture applications. This project is based on the increasing popularity of multi-spectral and hyperspectral imaging and targets the development of efficient techniques for image classification taking into account the rich spectral information of hyperspectral images that raises new challenges that we aim to solve.