

# Workshop: Current and future applications of non-invasive and invasive BCIs

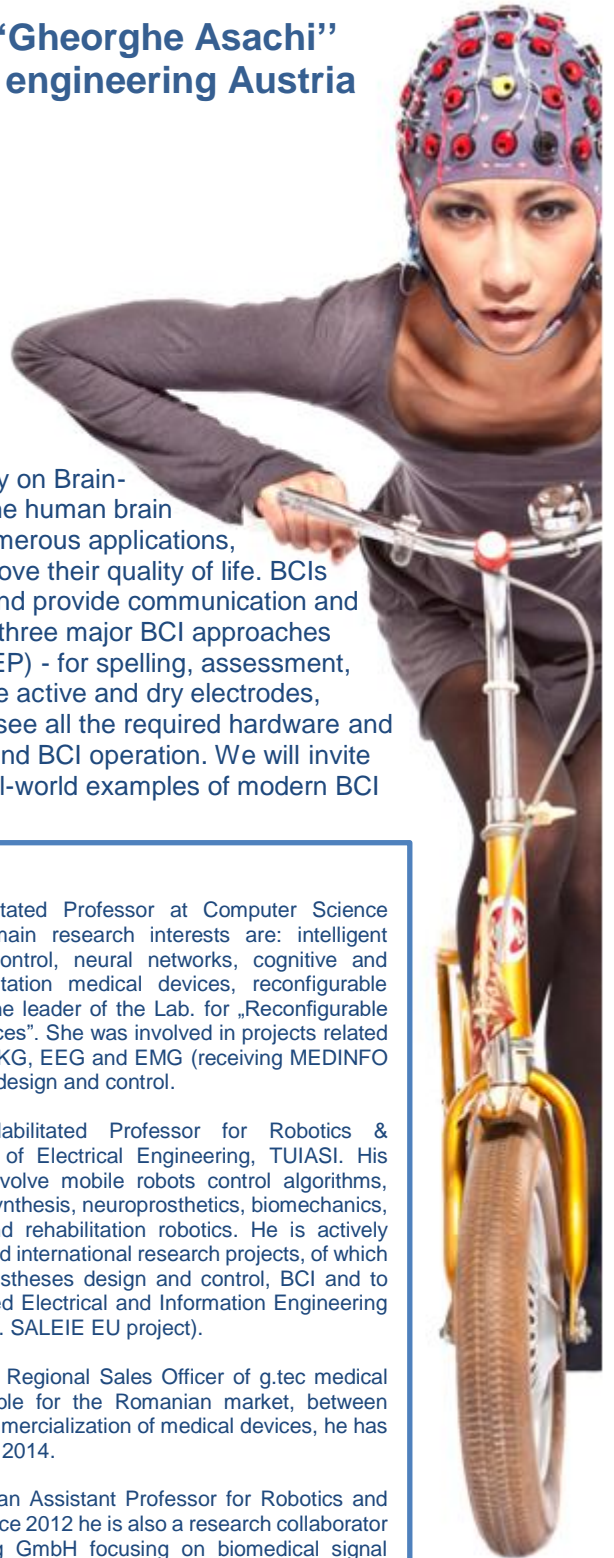
University POLITEHNICA of Bucharest & “Gheorghe Asachi”  
Technical University of Iasi & g.tec medical engineering Austria

May 24<sup>th</sup>, 2017

**Venue:** Faculty of Automatic Control and Computers  
**PRECIS Building, ROOM PR603**  
**Reconfigurable high-confidence medical devices LAB**  
**Address:** 313 Splaiul Independentei, sect. 6, Bucharest  
**Tel:** +40 744 286352  
**https://cs.pub.ro**

## About the Workshop

Research groups all over the world have been working enthusiastically on Brain-Computer Interfaces (BCIs), which provide a direct connection from the human brain to a computer. BCIs translate brain activity into control signals for numerous applications, including tools to help severely disabled users communicate and improve their quality of life. BCIs have been used to restore movement, assess cognitive functioning, and provide communication and environmental control. During this workshop, we will demonstrate the three major BCI approaches: motor imagery, P300 and steady state visual evoked potentials (SSVEP) - for spelling, assessment, rehabilitation and robot control. We will also explain new directions like active and dry electrodes, invasive ECoG systems and advanced VR control. The audience will see all the required hardware and software, procedures for cap mounting, training and classifier setup, and BCI operation. We will invite audience members to participate in live demonstrations, providing real-world examples of modern BCI performance in field settings.



## Program:

- 9:30 **Nirvana Popescu:** *Intelligent hand rehabilitation systems*
- 9:50 **Marian Poboroniuc:** *TUIASI research related to BCI-based Rehabilitation*
- 10:10 **Ioan Dumitrache:** *Trends in Neurosciences*
- 10:30 **Francisco Fernandes & Danut Irimia:** *Introduction to major methodological approaches of BCI & introduction to hard- and software. Theoretical preparation of the hands-on experiments.*
- 12:00 Lunch break
- 13:00 **Hands-on sessions:**  
*BCI live experiments, g.Nautilus, RecoveriX*
- 16:00 Final discussion & questions

Attendance is free of charge but registration is required due to limitation of space. Please contact:

Nirvana Popescu [nirvana.popescu@cs.pub.ro](mailto:nirvana.popescu@cs.pub.ro),  
Marian Poboroniuc [mpobor@tuiasi.ro](mailto:mpobor@tuiasi.ro),  
Francisco Fernandes: [fernandes@gtec.at](mailto:fernandes@gtec.at)

**N.B.:** The workshop will be held in English.

## Speakers:

**Nirvana Popescu** is Habilitated Professor at Computer Science Department in UPB. Her main research interests are: intelligent systems, fuzzy logic and control, neural networks, cognitive and autonomous robots, rehabilitation medical devices, reconfigurable computers. At UPB, she is the leader of the Lab. for „Reconfigurable high-confidence medical devices”. She was involved in projects related to neuro-fuzzy diagnosis of EKG, EEG and EMG (receiving MEDINFO award) and neuroprostheses design and control.

**Marian Poboroniuc** is Habilitated Professor for Robotics & Neuroprostheses at Faculty of Electrical Engineering, TUIASI. His current research interests involve mobile robots control algorithms, human motion analysis and synthesis, neuroprosthetics, biomechanics, brain-computer interfaces and rehabilitation robotics. He is actively involved in several national and international research projects, of which most are related to neuroprostheses design and control, BCI and to increasing the pool of qualified Electrical and Information Engineering graduates across Europe (e.g. SALEIE EU project).

**Francisco Fernandes** is the Regional Sales Officer of g.tec medical engineering GmbH responsible for the Romanian market, between others. Specialised in the commercialization of medical devices, he has been working with g.tec since 2014.

**Danut-Constantin Irimia** is an Assistant Professor for Robotics and System Theory at TUIASI. Since 2012 he is also a research collaborator of g.tec medical engineering GmbH focusing on biomedical signal processing and Brain-Computer Interfaces for post-stroke rehabilitation.

Special thanks to prof. dr. eng. Ioan Dumitrache and the hosts of the Workshop.

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## Registration Form:

Please fill in and send it back by email to  
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Marian Poboroniuc: [mpobor@tuiasi.ro](mailto:mpobor@tuiasi.ro) and/or  
Francisco Fernandes: [fernandes@gtec.at](mailto:fernandes@gtec.at)

Name & Degree (as to appear on workshop materials):

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Institution/Affiliation:

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Department:

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Business Address:

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City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Business Phone: \_\_\_\_\_

E-mail Address (important for receiving the confirmation)

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