

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

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

May 25th, 2017

Venue: Faculty of Automation, Computers and Electronics - INCESA

Room: INCESA - Conference room

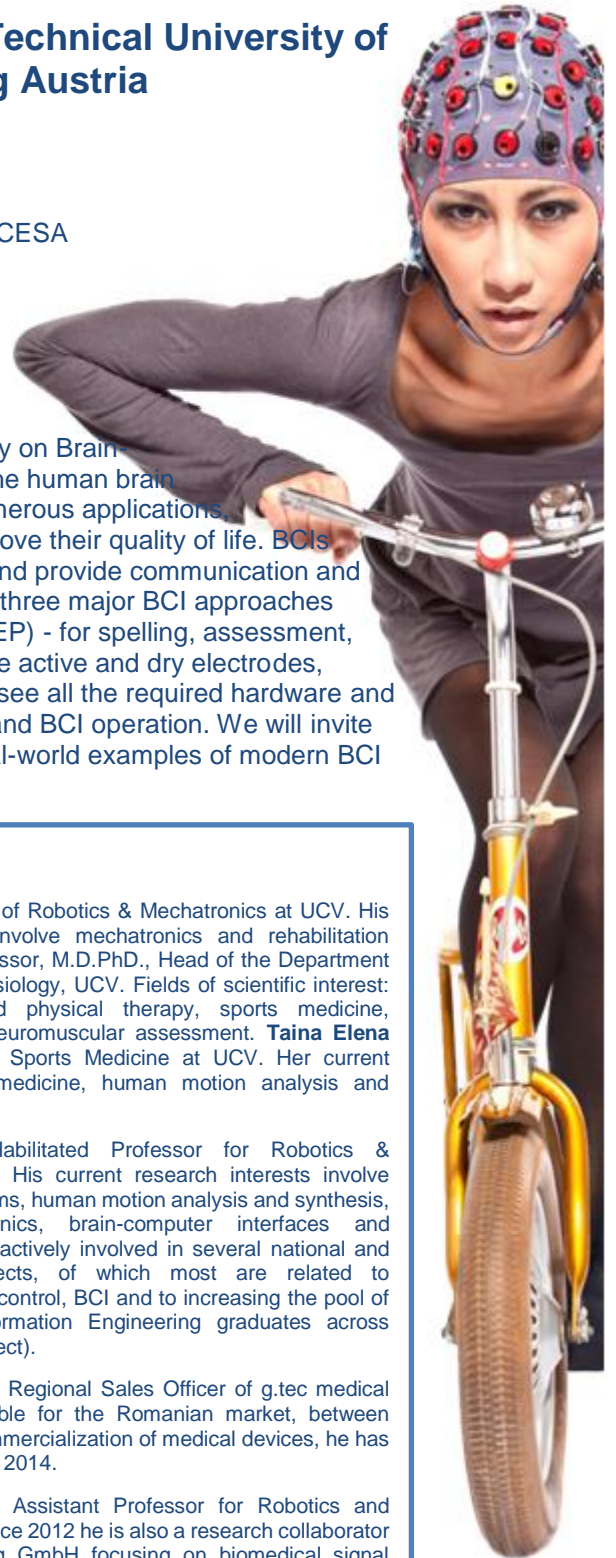
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About the Workshop

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 **Dorin Popescu & Taina Elena Avramescu & Ligia Rusu:** UCV research related to biomedical engineering and rehabilitation
- 10:00 **Marian Poboroniuc:** TUIASI research related to BCI-based Rehabilitation
- 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: Dorin Popescu dorinp@robotics.ucv.ro, Marian Poboroniuc mpobor@tuiasi.ro, Francisco Fernandes: fernandes@gtec.at
N.B.: The workshop will be held in English.

Speakers:

Dorin Popescu is Professor of Robotics & Mechatronics at UCV. His current research interests involve mechatronics and rehabilitation robotics. **Ligia Rusu** is Professor, M.D.PhD., Head of the Department of Sports Medicine and Kinesiology, UCV. Fields of scientific interest: medicine, rehabilitation and physical therapy, sports medicine, biomechanics, physiology, neuromuscular assessment. **Taina Elena Avramescu** is Professor of Sports Medicine at UCV. Her current research interests involve medicine, human motion analysis and rehabilitation.

Marian Poboroniuc is Habilitated Professor for Robotics & Neuroprostheses at 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 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.



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Registration Form:

Please fill in and fax back: +40. 251.436999
or email it to Dorin Popescu dorinp@robotics.ucv.ro,
Marian Poboroniuc mpobor@tuiasi.ro and
Francisco Fernandes: fernandes@gtec.at

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

Institution/Affiliation:

Department:

Business Address:

City: _____ State: _____ Zip: _____

Business Phone: _____

E-mail Address (important for receiving the confirmation)



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