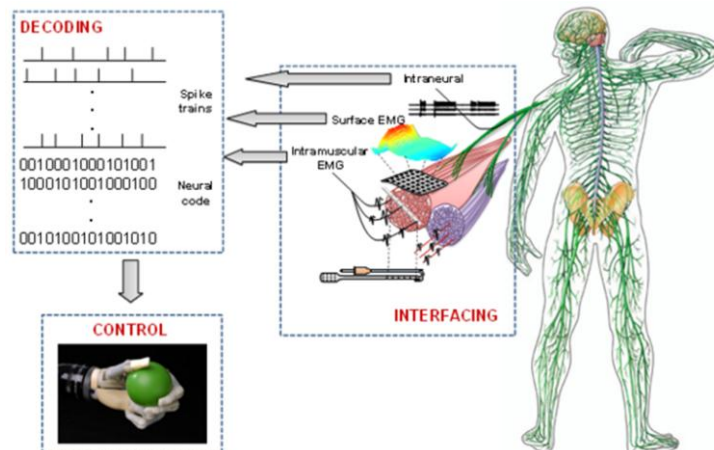


DEMOVE Symposium

Translational Engineering in Neurorehabilitation 2012 (TEN 2012)

*“Decoding the neural drive to muscles for advanced
assistive technologies”*

21st to 22nd of June 2012





European Research Council
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The DEMOVE Project

In this project, we propose the development of advanced electrode systems for in-vivo electrophysiological recordings from nerves and muscles in humans and new computational methods/models for extracting functionally significant information on human movement from these recordings. The highly innovative focus is that of providing the link between the cellular mechanisms and the behavior of the whole motor system in the intact human, i.e. to build the bridge between the neural and functional understanding of movement. On the basis of these new technologies, we aim at answering open questions in movement neuroscience and using novel principles for man-machine interaction. Specific applications in man-machine interaction are related to neurorehabilitation technologies, such as functional electrical stimulation, myoelectric and peripheral neural prostheses.

Registration fee

The Department of Neurorehabilitation Engineering invites you to attend the First DEMOVE Symposium 2012 to be held at the University Medical Center Goettingen (UMG) Georg August University, Von Siebold Str. 3, Germany from 21st to 22nd June 2012. The symposium will be at the auditorium **Grosser Hörsaal MED 25**;

Please register before May 31st 2012.

Registration to the Congress includes: Entry to all sessions (21st- 22nd June 2012) and copy of slides, daily morning coffee/tea, soft drinks, lunch and afternoon coffee/tea/soft drinks during the main programme.

We look forward to welcoming you to the Symposium.

You may register for the Symposium by following the prompts:

Account holder: Universitätsmedizin Göttingen, Robert-Koch-Strasse 40,
37075 Göttingen;

Sparkasse Göttingen; Bank code: 26050001; Account no.: 448;

IBAN-No.: DE55260500010000000448; BIC Code: NOLADE21GOE;

Reason for transfer: Cost center 1601760, Demove Symposium: Translational Engineering in Neurorehabilitation 2012



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Welcome

DEMOVE Symposium 2012

We would like to extend a very warm welcome to you as participant to the First DEMOVE Symposium 2012.

Thank you very much for registering to this event and for your active contributions.

We hope you will find the program and organization of this symposium stimulating and rewarding both for your professional and personal success. If we can do anything to make your participation here more efficient or you have any questions or concerns, please do get in touch with us. We wish you a very good meeting.

With warm regards,
The Meeting Committee

Dr. S. Utku Yavuz Tel.: + 49 (0) 551 39 20282 Email: utku.yavuz@bccn.uni-goettingen.de
Dr. Massimo Sartori Tel.: +49 (0) 551 39 20105 Email: massimo.sartori@bccn.uni-goettingen.de
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Department of Neurorehabilitation Engineering Prof. Dr. Dario Farina



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The Program

21st of June 2012

THURSDAY

“Grosser Hörsaal MED 25”

08:30 – 09:00 Introduction - Dario Farina

09:00 – 09:40 Guest Topic – Alexander Gail

“Extracting movement goal information from cortical sensorimotor areas”

10 minutes Discussion

09:50 – 10:15 Coffee break

Motor Control Physiology

10:15 – 10:55 Kemal S. Türker

“New developments on the methods to investigate human spinal circuits in vivo”

10 minutes Discussion

11:05– 11:45 CJ Heckman

“Reverse engineering motor unit firing patterns to identify the synaptic organization of motor commands”

10 minutes Discussion

11:55 – 12:35 Francesco Negro, S. Utku Yavuz

“Estimating common synaptic input to motor neurons: new approaches based on population of motor unit spike trains”

10 minutes Discussion

12:45 – 13:45 Lunch break

Electrode and Biosensor Design

13:45 – 14:25 Roberto Merletti

“Surface EMG imaging with 2D electrodes”

10 minutes Discussion

14:35 – 15:15 Silvia Muceli

“Toward a novel neural machine interface for prosthesis control based on implanted intramuscular micro-fabricated sensors”

10 minutes Discussion

15:25 – 15:45 Coffee break

15:45 – 16:25 Klaus-Peter Hoffmann

“Electrodes for nerve and muscle interfacing: technologies of manufacturing and applications”

10 minutes Discussion

19:00 Invited Speakers Dinner, Meeting Point: Von-Siebold-Str.3, in front of the entry doorman.



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The Program

22nd of June 2012

Friday

“Grosser Hörsaal MED 25”

Control and Biomechanical Modeling

08:30 – 09:10 Herman van der Kooij

“Sensorimotor control principles in rehabilitation robotics”

10 minutes Discussion

09:20 – 10:00 Massimo Sartori

“Neuromusculoskeletal modeling for neurorehabilitation technologies”

10 minutes Discussion

10:10 – 10:30 Coffee break

10:30 – 11:10 David Lloyd

“EMG-driven and assisted neuromuscular skeletal modeling to estimate the Action of Muscles”

10 minutes Discussion

11:20 – 12:00 Strahinja Došen

“Electrocutaneous sensory feedback: From motor control to prosthetics applications”

10 minutes Discussion

12:10 – 14:10 Lunch break and Laboratory demonstrations

Biosignal Processing and Computational Neuroscience

14:10 – 14:50 Bernhard Graimann

“Clinical requirements of myoelectric prostheses”

10 minutes questions

15:00 – 15:40 Florentin Wörgötter

“Neuro plasticity modelling”

10 minutes Discussion

15:50 – 16:10 Coffee break

16:10 – 16:50 Ning Jiang and Hubertus Rehbaum

“Intuitive, simultaneous and proportional myoelectric control for upper prosthetics: initial real time assessments with amputees”

10 minutes Discussion

17:00 End of the Symposium



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SPEAKERS

Strahinja DOŠEN

Department Neurorehabilitation Engineering, UMG, Germany

Dario FARINA

Department Neurorehabilitation Engineering, UMG, Germany

Alexander GAIL

German Primate Center, Germany

Bernard GRAIMANN

Otto Bock HealthCare, Strategic Technology Management, Germany

CJ HECKMAN

Northwestern University Feinberg School of Medicine, USA

Klaus-Peter HOFFMANN

Fraunhofer Institute for Biomedical Engineering, Germany

Ning JIANG

Department Neurorehabilitation Engineering, UMG, Germany

Herman van der KOOIJ

Laboratory Biomechanical Engineering, University of Twente, Netherland

David LLOYD

Musculoskeletal Research Center, Griffith University, Australia

Roberto MERLETTI

Lab. for Engineering of the Neuromuscular System, Politecnico di Torin, Italy

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Francesco NEGRO

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Department Building 1
Von Siebold Str. 4

Symposium Building
Von Siebold Str. 3

