

11th NeuroEngineering Symposium – Final Program

Themes: Guidance and Imaging in Neurosurgery, Multimodal Neurointensive Care, Deep Brain Stimulation (DBS)

Time: November 7-8, 2024

Venue: Hugo Theorell, North Entrance, Linköping University Hospital, Linköping, Sweden

Thursday Nov. 7

- 9-10 Registration – Coffee and Tea, Posters and Exhibition
- 10-12 GUIDANCE AND IMAGING IN NEUROSURGERY - Moderator Karin Wårdell**
Welcome, Karin Wårdell, Neuroengineering, Department of Biomedical Engineering, Linköping University (LiU)
- 10:00-10:30 **Novel high performance MR system for neuroimaging**, Carl-Fredrik Westin, Laboratory of Mathematics in Imaging, Harvard Medical School
- 10:30-11:00 **Implementation of new techniques in neurosurgery**, Johan Ljungkvist, Neurosurgery, Sahlgrenska University Hospital
- 11:00-11:30 **Tumor surgery with multimodal guidance**, Peter Milos, Neurosurgery, Linköping University Hospital
- 11:30-12:00 **Optical guided biopsy – methods and possibilities**, Johan Richter, Neurosurgery, Linköping University Hospital
- 12-13:30 Lunch (Registration required) - Posters and Exhibition
- 13:30-15 MONITORING AND IMAGING IN NEUROINTENSIVE CARE - Moderator Johan Richter**
- 13:30-14:00 **The glymphatic system**, Alba Corell, Neurosurgery, Sahlgrenska University Hospital
- 14:00-14:30 **Search for ischemic events through multimodal monitoring**, Fredrik Ginstman, Neurointensive Care, Linköping University Hospital
- 14:30-15:00 **Challenges and opportunities with imaging and data analysis of cerebral perfusion**, Sofie Tapper, Neuroengineering, LiU
- 15-15:30 Coffee and Tea Break - Posters and Exhibition
- 15:30-17 DEEP BRAIN STIMULATION - Moderator Carl-Fredrik Westin**
- 15:30-16:00 **Deep Brain MRI architecture (DB-MA) atlas**, Jean-Jacques Lemaire, Neurosurgery, Université Clermont Auvergne
- 16:00-16:20 **DBS - patient-specific simulation and visualization**, Karin Wårdell, Neuroengineering, LiU
- 16:20-16:40 **How input data shapes probabilistic therapeutic targets in DBS**, Vittoria Bucciarelli, Neural Engineering, University of Life Sciences and Arts Northwestern Switzerland (FHNW)
- 16:40-17:00 **DBS surgery workflow in Linköping**, Peter Zsigmond, Neurosurgery, Linköping University Hospital
- 19 Networking Dinner (Registration required)

Friday Nov. 8

- 8:30-10 OPTICS IN NEUROSURGERY - Moderator Kerstin Ramser**
- 8:30-9:00 **45 years with laser Doppler flowmetry**, Karin Wårdell, Neuroengineering, LiU
- 9:00-9:20 **Correlation between LDF and NICU monitoring data**, Stina Mauritzon, Neuroengineering, LiU
- 9:20-9:40 **Intraoperative optics combined with MRI diffusion and relaxometry**, Elisabeth Klint, Neuroengineering, LiU
- 9:40-10:00 **Raman spectroscopy in detection of tumor tissue**, Dirce Pineda Vazquez, Luleå Technical University
- 10:00-10:30 Coffee and Tea Break - Posters and Exhibition
- 10:30-12:10 NEUROIMAGING AND DBS - Moderator Peter Zsigmond**
- 10:30-11:00 **Let's play a cognitive game**, Ankica Babic, Medical informatics, LiU
- 11:00-11:20 **Performance and suitability assessment of a novel electromagnetic navigation system for DBS surgery**, Céline Vergne, Neural Engineering, FHNW
- 11:20-11:40 **MR spectroscopy in tremor patients with DBS**, Nathanael Göransson, Neurosurgery, Linköping/Skåne University Hospital
- 11:40-12:00 **Quantitative MRI in hydrocephalus: a fast, reliable and clinically useful tool for ventricular volumetry**, Rafael Turczynski Holmgren, Neurosurgery, Linköping University Hospital
- 12:00-12:10 **Closing remarks**, Karin Wårdell, Neuroengineering, LiU
- 12:10 Lunch (Registration required)

Exhibitors: Elekta, Medtronic, inomed, FluoLink, Medac, SyntheticMR

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