Title: Algorithms in Biomagnetism: From Sensing, Forward Modeling, Imaging to Advanced Analytics

Zoom:
ID: 84943221795
Passcode: 421986

Hello Everyone,

It was fantastic to see you all both in person and virtually and to hear about your latest work!
Thanks to Matti for the photos!

Cheers
Sri, Stefan, and Carsten

Location:
Edgbaston Park Hotel, Birmingham, B15 2RS. On arrival, please go to the registration desk, next to the main hotel reception to collect your badge and to be advised which meeting room you need to go to. The registration desk will be open from 08.00.

Abstract:
In this satellite workshop at Biomag2022, leading scientists in our field will provide brief talks on their cutting-edge algorithms for biomagnetic signal analyses. The scope of the workshop will span advances in forward modeling, sensor-level processing and

interference suppression, source localization, functional connectivity, multimodal fusion and stimulus decoding. This workshop should provide a friendly atmosphere for discussion and exchange of ideas for the expert audience as well as an educational opportunity for students and fellows. Confirmed speakers and their talk titles, organized by thematic topics are listed below:

Organizers:
Srikantan S. Nagarajan: sri@ucsf.edu
Kensuke Sekihara; k-sekihara@nifty.com
Carsten Wolters: carsten.wolters@uni-muenster.de
Stefan Haufe: stefan.haufe@charite.de

9-9.05 Srikantan Nagarajan, Welcome and Introduction

First Session (9.05-10.35): Advanced forward modeling in bioelectromagnetism, Session Chair: Carsten

1. 9:05-9:20 Carsten Wolters (Münster/Germany): Review of FEM forward methods for bioelectromagnetism applications [In person]
2. 9:20-9:35 Leandro Beltrachini (Cardiff/UK): Advances on the subtraction approach for solving the forward problem in E/MEG [REMOTE]
3. 9:35-9:50 Johannes Vorwerk (Hall/Austria): The multipole approach for EEG/MEG forward modeling using the finite element method [In Person]
4. 9:50-10:05 Tim Tierney (Gareth Barnes, UCL): Spherical harmonic based noise rejection and neuronal sampling with multi-axis OPMs [In person]
5. 10:05-10:20 Takfarinas Medani (USC, Los Angeles/USA) / Juan Garcia-Prieto (MGH, Boston): Brainstorm - DUNEuro: Open access software tool for advanced forward modeling in EEG and MEG [REMOTE]
6. 10.20-10.35 Matti Hamalainen (Aalto University, Espoo and MGH, Boston): On-Scalp MEG: New Possibilities and Challenges

Coffee Break 10.35-11.00

Second Session (11-1) Preprocessing and Inverse Models, Session Chair: Stefan Haufe

7. 11.00-11.15 Daria Kleeva, A. Ossadtchi, PSIICOS projection based and DTI-informed Bayesian functional connectivity analysis from MEG data (Higher School of Economics, Moscow, Russian Federation) (REMOTE)
8. 11.15-11.30 Sampsa Pursiainen (Tampere University, Finland): "Parametrization of hierarchical inversion methods and evaluation on real datasets" [In Person]

9. 11.30-11.45 Sophie Schrader/Carsten Wolters (Münster/Germany): A new calibration approach for combined EEG and MEG source analysis and its use in presurgical epilepsy diagnosis [In Person]
10. 11.45-12.00 Ali Hashemi (TU Berlin, Stefan Haufe), Hierarchical Bayesian Learning for Noise Estimation in Electromagnetic Brain Source Imaging [In Person]
11. 12.00-12.15 Kiwamu Kudo (Ricoh Company), “Staging of MEG resting-state metrics in Alzheimer's disease progression” (REMOTE)
12. 12.15-12.30 Jean-Marc Lina (U de Montréal, Canada) with B. Toressani (Marseille, Fr.), “Space-time and wavelet inference within the MEM framework”
13. 12.30-12.45 Srikantan Nagarajan, UCSF, “Structure-function network activity with MEG”
14. 12.45-1pm Esther Florin (Heinrich-Heine University Düsseldorf), “Removing deep brain stimulation artifacts from MEG data” - in person

Lunch Break 1-2pm

Third Session (2-3.15) Multimodal Fusion, Session Chair: Srikantan Nagarajan

15. 2.00-2.15 Alex Gramfort (Université Paris-Saclay, Inria, France), Improving MEG/EEG spatial resolution with multi-subject source imaging
16. 2.15-2.30 Richard Rosch (Karl Friston), Bayesian fusion of intracranial EEG and chemoreceptor data
17. 2.30-2.45 Laura Marzetti, Multivariate connectivity analysis for MEG/EEG
18. 2.45-3 Guido Nolte, Hamburg U, Relations between linear and nonlinear coupling measures for Gaussian distributed data
19. 3-3.15 Andrew Quinn (Oxford/Birmingham), "Instantaneous frequency and the waveform shape of neuronal oscillations” [In Person]

Tea Break 3.15-3.30

Fourth Session (3.30-4.45) Advanced Analytics, Session Chair: Srikantan Nagarajan

20. 3.30-3.45 Daniel Kluger (Joachim Gross), “A comprehensive framework for analysing body-brain interactions”
21. 3.45-4.00 Karim Jerbi (UdeM) "Scale-free brain dynamics: A window into information integration in health and disease" - REMOTE
22. 4.00-4.15 Dimitrios Pantazis, Graph deep learning methods for the statistical analysis of MEG brain networks [In Person]
23. 4.15-4.30 Zelekah Seedat (Matt Brookes), The Role of Transient Spectral ‘Bursts’ in Functional Connectivity
24. 4.30-4.45 Mina Jamshidi (Vadim Nikulin), “Harmonic-driven spurious phase synchronization in EEG/MEG data: the problem and

a (partial) solution” - [REMOTE]

25. 4.45-5.00 Jonathan Simon (UMD, College Park/USA), “Integrating temporal response function estimation with sparse source localization” [REMOTE] <http://cansl.isr.umd.edu/simonlab/pubs/BioMag2022NCRF.pdf>