Workshop on Diffusion Weighted Imaging (DWI)

June 8-9, 2022

National Neuroimaging Facility

Centre of Behavioural and Cognitive Sciences, University of Allahabad

Venue

National Neuroimaging Facility
Centre of Behavioural and Cognitive Sciences
Senate Campus (Opposite Krishna Coaching)
University of Allahabad
Prayagraj – 211 002

About the workshop

This workshop will focus on hands-on training with acquisition of Diffusion weighted imaging (DWI) sequences, data pre-processing and analysis. Diffusion weighted imaging is a useful tool in neuroimaging research and provides useful information for clinical and cognitive neuroscience. DWI is an MR imaging modality that is widely used to infer white matter neuroanatomical microstructure and connectivity in-vivo. This imaging technique uses additional diffusion sensitive gradients sensitive to motion of water molecules and their diffusion profiles to indirectly infer the underlying white matter microstructure from the MR signal.Several models have been used for this task of modelling the white matter architecture from the diffusion weighted MR signal, out of which the diffusion tensor model is the most widely used. A further step towards non-invasive, in-vivo delineation of white matter is the process of piecing together the computed local fibre orientations to anatomically defined fibre tract bundles and is termed tractography.

This workshop aims to glance through the basics of DWI acquisition with the 3T scanner at the National Neuroimaging Facility, CBCS, pre-processing and analysis. Diffusion Imaging theory and acquisition would be discussed in brief, followed by basic pre-processing strategies. This would be followed by an introduction to two diffusion imaging models namely the diffusion tensor and the bi-tensor model. Deterministic and Probabilistic tractography would also be discussed.

Resource person
Dr. Madhura Ingalhalikar, Scientist,Clario, Texasand Adjunct Faculty, Symbiosis Centre for Medical Image Analysis, Symbiosis International University, Pune.

Dr. Madhura Ingalhalikar has a PhD in Biomedical Engineering from University of Iowa and a post-doctoral and research associate position at University of Pennsylvenia, Philadelhphia. She has extensively worked in the field of Neuroimaging with a focus on diffusion MRI, multimodality imaging and deep learning. She is currently involved in projects on movement disorders, tumors and cognitive science.

Dr. Madhura Ingalhalikar

Archit Ranjan, Symbiosis Centre for Medical Image Analysis, Symbiosis International University, Pune

No. of seats: 25

Participants: Advanced Masters, PhD students and Postdoctoral fellows, with research interests in cognitive science/neuroscience/psychology/cognitive neuroscience

Registration fee: (to be paid on site)
Masters / PhD Scholars: Rs. 2500/-
Postdoctoral fellows: Rs. 4000/-

Accommodation will be provided to all outstation participants.

Applicants are requested to kindly submit the Google Registration Form <https://forms.gle/41ziJAsCHdLUKBr27> latest by May 16, 2022. Students will be notified about the acceptance of their participation by May 20, 2022.

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