Ayan Sengupta

Sir Peter Mansfield Imaging Center
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Education

Doctor rerum naturalium, Psychology — 2013-2016
Otto-von-Guericke-Universität — Germany
DFG Project: *Does multivariate pattern analysis profit from MRI data with high resolution and sensitivity at high magnetic field strength (7T)?*

M.S., Computer Science and Engineering — 2010-2012
University of Nebraska, Lincoln — USA
Thesis: *MRI and histo-pathological image co-registration of brain for HIV-based murine model of neurocognitive decline*

B.Tech., Electronics and Communication Engineering — 2004-2008
West Bengal University of Technology — India

Academic Honors

DFG Research Fellowship — 2013
Otto-von-Guericke-Universität — Germany

Graduate Teaching Assistantship — 2010
University of Nebraska, Lincoln — USA

Chancellor's Fellowship — 2010
University of Nebraska, Lincoln — USA

Oracle 9i PL/SQL Award of Achievement from Oracle University — 2010

Sun Certified JAVA programmer (SCJP 1.5) — 2009

National Merit Scholarship — 2002 and 2004
Exceptional academic performance in Middle and High School — India

Professional and Research Experience

Research Fellow — 2013-2016
Sir Peter Mansfield Imaging Center
University of Nottingham — UK
Supervisor: **Prof. Susan Francis**, Dept. of Physics and Astronomy

- Somatotopic mapping of digits in human primary somatosensory cortex.
- Multivariate Analysis of BOLD response to Intraneural Microstimulation and vibrotactile stimulation

DFG Research Associate 2013-2016
Otto-von-Guericke-Universität Germany
Supervisor: **Dr. Stefan Pollmann**, Dept. of Experimental Psychology, OVGU
Co. Supervisor: **Dr. Michael Hanke**, Dept. of Psychoinformatics, OVGU

- Multivariate Pattern Analysis of ultra-high field (7T) multi-resolution fMRI for orientation decoding in human primary visual cortex.
- Comparison of Magnetic Field Strength (3T vs 7T) for better SNR and sensitivity in multi-resolution fMRI, to find its contribution to orientation classification analysis.

Technical Officer, Govt. of India 2012-2013
National Brain Research Center India
Collaborator: **Dr. Alan Evans**, MNI, McGill University

- Designed and implemented of the first Tele-Medicine grid of Neuroscience in India in collaboration with McGill University, Montreal. This project was an extension of **LORIS** platform for studying Dementia in the aging population in India.
- Research on determining track followed by neural stem cells from sub-ventricular zone to the area of infarct during neurogenesis in stroke models of rodents. Worked on co-registration of MR angiography and DTI image volumes in this project.
- Worked on the field of Computational Neuroscience, designing and running fMRI experiments.

Visiting Scholar 2012
National Institute of Mental Health and Neurosciences India
Supervisor: **Dr. John P. John**, Dept. of Psychiatry, NIMHANS

- Hands-on experience in Multi-modal Imaging like fMRI,MRS, EEG, High-Angular DTI
- Analysis and correlation of fMRI and DTI images

Graduate Researcher and Teaching Assistant 2010-2012
University of Nebraska Lincoln USA
Supervisor: **Dr. Ashok Samal**, Dept. of Computer Science, UNL
Co. Supervisor: **Dr. Yutong Liu**, Dept. of Radiology, UNMC

- Worked in collaboration with University of Nebraska Medical Center, USA on a project involving Automatic Landmark Selection and Optimization of landmarks, for non-linear co-registration of MRI slices of rat brains with corresponding histological images. This project was done for tracking growth of HIV induced neuro-cognitive disorders in murine models.
- Taught 'Introduction to computer Science with Java' and was in-charge of 'Introduction to data structure and algorithms' laboratory

Programmer Analyst 2008-2010
Cognizant Technology Solutions India

- Defect-resolving and performance-tuning of databases. Worked on design and development of Global Strategic Trading Platform of JP Morgan Chase Bank, USA
- Sybase Analyst and Developer, Java developer

Technical Strengths

- Programming Languages: Python, MATLAB, BASH, C++, JAVA
- Neuroimaging Softwares: PyMVPA, FSL, Freesurfer, AFNI, SPM

Conference Presentations **Presenter**

- Ayan Sengupta, Renat Yakupov, Oliver Speck, Stefan Pollmann and Michael Hanke (2015). **Optimal Resolution and Filtering for Orientation Decoding in V1 at 7T**. Organization of Human Brain Mapping 2015. Presentation delivered at the Organization of Human Brain Mapping 2015 meeting, Honolulu, Hawaii, June, 2015.
- Ayan Sengupta, Cecile Madjar and Samir Das (2014). **DicAT - DICOM Anonymization Tool** Organization of Human Brain Mapping 2014. The software was conceived, developed and presented in collaboration with LORIS team of McGill University at the Organization of Human Brain Mapping Hackathon, Berlin, June, 2014.
- Ayan Sengupta, Michael D. Boska, Howard E. Gendelman, Ashok Samal and Yutong Liu (2012). **Automation of Landmark Selection for Rodent Brain MRI-Histology Registration using Thin-Plate Splines**. Nebraska Annual Research Symposium 2012, Lincoln, Nebraska, 2012.

Publications

- Ayan Sengupta, Renat Yakupov, Oliver Speck, Stefan Pollmann and Michael Hanke. **The effect of acquisition resolution on orientation decoding from V1 BOLD fMRI at 7 Tesla**
  doi:10.1101/081604

- Ayan Sengupta, Falko Kaule, J. Swaroop Guntupalli, Michael B. Hoffmann, Christian Häusler, Jörg Stadler and Michael Hanke. **A studyforrest extension, retinotopic mapping and localization of higher visual areas**
  doi:10.1038/sdata.2016.93

- Michael Hanke, Nico Adelhöfer, Daniel Kottke, Vittorio Iacovella, Ayan Sengupta, Falko R. Kaule, Roland Nigbur, Alexander Q. Waite, Florian Baumgartner and Jörg Stadler. **A studyforrest extension, simultaneous fMRI and eye gaze recordings during prolonged natural stimulation**
  doi:10.1038/sdata.2016.92