

## Ayan Sengupta

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Sir Peter Mansfield Imaging Center  
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Education	<b>Ph.D. (Dr. rer. nat.), Psychoinformatics</b> Otto-von-Guericke-Universität <b>Thesis:</b> <i>The Effect of Acquisition Resolution and Magnetic Field Strength on Multivariate Decoding of fMRI</i>	2013-2016 Germany
	<b>M.S., Computer Science and Engineering</b> University of Nebraska, Lincoln <b>Thesis:</b> <i>MRI and histo-pathological image co-registration of brain for HIV-based murine model of neurocognitive decline</i>	2010-2012 USA
	<b>B.Tech., Electronics and Communication Engineering</b> West Bengal University of Technology	2004-2008 India
Academic Honors	<b>DFG Research Fellowship</b> Otto-von-Guericke-Universität	2013 Germany
	<b>Graduate Teaching Assistantship</b> University of Nebraska, Lincoln	2010 USA
	<b>Chancellor's Fellowship</b> University of Nebraska, Lincoln	2010 USA
	<b>Oracle 9i PL/SQL Award of Achievement from Oracle University</b>	2010
	<b>Sun Certified JAVA programmer (SCJP 1.5)</b>	2009
	<b>National Merit Scholarship</b> Exceptional academic performance in Middle and High School	2002 and 2004 India
Professional and Research Experience	<b>Research Fellow</b> Sir Peter Mansfield Imaging Center University of Nottingham Supervisor: <b>Prof. Susan Francis</b> , Dept. of Physics and Astronomy	2016-present UK

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

**DFG Research Associate** 2013-2016  
Otto-von-Guericke-Universität Germany  
Supervisor: **Dr. Michael Hanke**, Dept. of Psychoinformatics, OVGU  
Co. Supervisor: **Dr. Stefan Pollmann**, Dept. of Experimental Psychology, 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. *Ultra high-field (7Tesla) multi-resolution fMRI data for orientation decoding in visual cortex* (in press).
- **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*.
- **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*.
- 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*.
- Samir Das, Cécile Madjar, **Ayan Sengupta**, Zia Mohades. *LORIS: DICOM anonymizer*.
- **Ayan Sengupta**. *Automation of Landmark Selection for Rodent Brain MRI-Histology Registration using Thin-Plate Splines*.