MRITTIKA DEY

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EDUCATION

Université catholique de Louvain, Belgium *Apr 2023 - Present*
Ph.D. in Psychological Sciences

National Brain Research Center, India *Oct 2020 - July 2022*
Master of Science (M.Sc.) in Neuroscience
Final aggregate: 86.68%
Total credits: 120 ECTS

RESEARCH EXPERIENCE

Human Vision Lab *Apr 2023 - present*
Université catholique de Louvain, Belgium
Designation: PhD Candidate
Project Supervisor : Prof. Valérie Goffaux
Project : We explore the high-level face-specialized orientation tuning in the face-selective visual areas (and behavior) and investigate whether V1 contributes to such orientation selectivity.
Links: Poster

Human Vision Lab *Oct 2022 - Apr 2023*
Université catholique de Louvain, Belgium
Designation: Research Assistant
Project Supervisor : Prof. Valérie Goffaux
Project : Testing behavioral implications of coarse-to-fine spatial frequency integration during face processing.
Links: Poster

Cognitive Brain Dynamics Lab *Aug 2021 - July 2022*
National Brain Research Center, India
Designation: M.Sc. dissertation
Project Supervisor : Dr Dipanjan Roy
Project : Characterising age related dynamical changes in coherence, phase, and power between transient resting state networks in the brain from large-scale MEG datasets.
Links: Thesis, Slides, Codes

CONFERENCE PRESENTATIONS

- Dey, M., Schuurmans, J., & Goffaux, V. (2024). *Orientation tuning of face processing in human V1*, Poster at the European Conference on Vision Perception (ECVP), Aberdeen, Scotland.
- Dey, M., Schuurmans, J., & Goffaux, V. (2023). *Coarse-to-fine integration in human face identity recognition*, Poster at the Neurocog, Belgium.

SKILLS

Programming:	Python, MATLAB, R, LaTeX, HTML, CSS
Data collection:	3T fMRI, Psychophysics, EEG
Data Analysis:	fMRI, Psychophysics, MEG
Experimental Design:	fMRI, Psychophysics
Software & Tools:	Psychopy, FSL, Freesurfer, AFNI, fMRI-prep, EEGLAB, Fieldtrip

ACADEMIC WORKSHOPS AND APPLIED PROJECTS

Modeling distinct mechanisms of action potential initiation *March 2021*
Computational Neuroscience course, *National Brain Research Center, India*

- Replicated the results of the paper 'Biophysical Basis for Three Distinct Dynamical Mechanisms of Action Potential Initiation', Prescott et al., 2008 for Computational Neuroscience coursework project.
  Links: Report, Slides, GitHub repository

Computational Approaches to Memory and Plasticity (CAMP) *Aug 2022*

- Reducing the 4-dimensional Hodgekin Huxley neuron model to a simpler 2D model resembling the Fitzhugh Nagumo neuron model using a recurrent neural network.
  Links: Certificate, Slides, Codes
- Replicating the paper "Accurate Path Integration in Continuous Attractor Network Models of Grid Cells". We generated grid cell patterns by using inhibitory point neurons arranged in a disc around each neuron, and successfully replicated the grid cell population patterns as well as trajectories under different excitation-inhibition conditions.
  Links: Certificate, Original paper, Slides, Codes

Neuromatch Academy *July 2022 - Aug 2022*
Projects:

- We investigated the effective connectivity between visual and emotion-processing areas of the brain when participants perceived a fearful face v/s a neutral face, compared to when they perceived simple shape stimuli (HCP fMRI dataset).
  Links: Slides

COURSES

Neuroscience:	Cognitive Neuroscience, Computational Neuroscience, Systems Neuroscience, Cell and Molecular Neuroscience, Developmental Neurobiology, Neuroanatomy, Membrane Biophysics, Neurochemistry, Neuroimaging
MOOCs :	Computer Vision (Hany Farid, UCBerkeley), Principles of fMRI, NPTEL course on Machine Intelligence and Brain Research (conducted by the Indian Institute of Technology, Madras), MATLAB ONRAMP courses on Machine Learning, Signal Processing, Image Processing and Deep Learning

ACADEMIC ACHIEVEMENTS

- Ranked 2^{nd} in class during coursework at National Brain Research Center.