

SOVESH MOHAPATRA

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Education

University of Pennsylvania

PhD Student in BioEngineering

Advisors: Hao Huang and Minhui Ouang

Anticipated May 2028

University of Massachusetts Amherst

Bachelor of Science in Computer Science, Mathematics; Bachelor of Arts in Linguistics

May 2023

Professional Experience

UMass Amherst Department of Biomedical Engineering, IALS Core Intern

2021 - 2023

- Investigated effects of brain stimulation on the brain structure (connectivity, fractional anisotropy, and diffusivity) using image analysis software (SPM12, FSL) for diffusion tensor images of 50 patients.
- Studied the effects of brain stimulation on the real time functional connectivity changes in the brain circuits using the fMRI image analysis of 70 patients.
- Developed neural network models to predict the brain lesions in T1w, T2w and fMRI images with model's test loss at -0.8943.
- Developed machine learning models for prediction of the fMRI signal.

Massachusetts Institute of Technology CSAIL, UROP Intern

Summer 2021

- Developed machine learning models (Accuracy: 78%) to classify the different sentimental level of sentence.
- Built DL model to generate language descriptors (60% human understandability) from the visualizations.

Indian Institute of Technology Roorkee, Research Intern

2018 - 2020

- Repurposed drugs for the treatment of COVID-19 (Accuracy: 78%) and Chagas disease (Accuracy: 81%) by using classification models based on pharmacophore fingerprints.
- Built regression model (RMSE: 0.92) to predict quantum efficiency of solar cells using in-house data.

Selected Publications and Conference Proceedings

- Mohapatra, S., et al., Meta-Analysis of Transfer Learning for Segmentation of Brain Lesions, (2023). (arxiv) ([link](#))
- Mohapatra, S., et al., Sentiment is all you need to win US Presidential elections, (2022). NLP4DH, AACL-IJCNLP 2022 ([link](#))
- Mohapatra, S., et al., A machine learning approach to identify the engagement of a brain network targeted by non-invasive brain-stimulation, (2022). PLOS Computational Biology ([link](#))
- Mohapatra, S., et al., The (In)Effectiveness of Intermediate Task Training for Domain Adaptation and Cross-Lingual Transfer Learning, (2022). (arxiv) ([link](#))
- Mohapatra, S., et al., Using machine learning techniques to predict local brain engagement of noninvasive electrical stimulation, (2021). UMass IONs Poster Conference. ([link](#))
- Mohapatra, S., et al., Repurposing Therapeutics for COVID-19: Rapid Prediction of Commercially available drugs through Machine Learning and Docking, (2020). PLoS ONE. ([link](#))
- Mohapatra, S. & Satapathi, S., Magneto-Dielectric Hyperthermia Therapy for Adenocarcinoma, MRS Spring Meeting (2019): 560479 - Oral Presentation
- Mohapatra, S. & Satapathi, S., Inorganic Halide Perovskite Single Crystal—Growth Mechanism, Structural and Optical Properties, MRS Fall Meeting (2019): 3278080 - Poster Presentation
- Mohapatra, S. & Babel, S., A Critical Review on Machine Learning Algorithms, and their Applications in Pure Sciences, (2019) Research Journal of Recent Sciences. ([link](#))

Leadership Experience (selected experiences at UMass Amherst)

Brett and Brooks Cluster Residents Association, Resident Assistant

2021 - Present

- Managed \$2,000 for 20 residents, with expenditure for in-person/virtual social and sports events, subscriptions, and facility planning.

Anti-Racism/Bias Training Committee, Member

2021 - Present

- Prepared training module (5 hours) based on understanding different incidents of racism happening around and ways to handle for the joining resident assistants and peer mentors.

Technical/Language skills

Languages: English (Speak, Read, Write), Hindi (Speak, Read, Write), Odia (Speak, Read, Write)

Programming/Scripting Languages: Python (Deep Learning using TensorFlow/Keras, PyTorch), LaTeX, Java, Java Script

Software Packages: Origin, MATLAB, COMSOL, SPM12

Extra-Curricular Achievements

- Best Finance Hack at HackUMass IX – Project Titled - *Emotions Manipulate the Future* 2021
- President of India Medal for Exceptional Performance in the field of Innovation. 2016
- YONOSBI20under20 for being the best scientist and author under the age of 20 in India. 2019
- Three times TEDx Speaker ([TEDxNITSrinagar](#) | [TEDxRamjasCollege](#) | [TEDxManipal](#)). 2018, 2019

Interests

Sports - Soccer: UMass Intramurals, Table Tennis: UMass Intramurals