SOVESH MOHAPATRA

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Education

University of Pennsylvania Anticipated May 2028
PhD Student in BioEngineering
Advisors: Hao Huang

University of Massachusetts Amherst May 2023
Bachelor of Science in Computer Science, Mathematics; Bachelor of Arts in Linguistics

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., SAM vs BET: A Comparative Study for Brain Extraction and Segmentation of Magnetic Resonance Images using Deep Learning, (2023). (Medical Imaging meets NeurIPS). (link)
- **Mohapatra, S.**, et al., An Ensemble Approach to 3D Deep Learning for High-Resolution Diffusion MRI Segmentation in Neonatal Hypoxic-Ischemic Encephalopathy (2023). (BONBID-HIE, MICCAI)
- **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

Leadership Experience (selected experiences at UMass and UPenn)

Rangoli – South Asian Cultural Society, *Advocacy Chair* 2021 - 2023
- Responsible for bringing in sponsorship and handle logistically with the team around $12000 for in-person/virtual social and sports events, subscriptions, and facility planning.

Brett and Brooks Cluster Residents Association, *Resident Assistant* 2021 - 2023
- Managed $2,000 for 20 residents, with expenditure for in-person/virtual social and sports events, subscriptions, and facility planning.

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