

# SOVESH MOHAPATRA

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## Education

### University of Pennsylvania

PhD Student in Bioengineering

Advisors: Hao Huang and Minhui Ouyang

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 -0.1157.
- Developed machine learning models for prediction (accuracy: 0.92) of the fMRI signal to understand the effect of stimulation.

### 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.

## Selected Publications and Conference Proceedings

- Ouyang, M., Whitehead, M.T., **Mohapatra, S.**, et al., Machine-learning based prediction of future outcome using multimodal MRI during early childhood, (2024). Seminars in Fetal and Neonatal Medicine ([link](#))
- **Mohapatra, S.**, et al., Graph kernel assisted robust individual and group level functional brain parcellation (GRAFP), (2024). 24<sup>th</sup> ISMRM & ISMRT Annual Meeting 2024 ([link](#))
- **Mohapatra, S.**, et al., Meta-Analysis of Transfer Learning for Segmentation of Brain Lesions, (2023). (arxiv) ([link](#))
- **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, NeurIPS 2023 ([link](#))
- \***Mohapatra, S.**, et al., An Ensemble Approach for Segmentation of Neonatal HIE Lesions, (2023). BONBID-HIE, MICCAI 2023 ([link](#))
- \***Mohapatra, S.**, et al., Automated ensemble method for pediatric brain tumor segmentation, (2023). BrainLes, MICCAI 2023 ([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., 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., Sentiment is all you need to win US Presidential elections, (2022). NLP4DH, AACL-IJCNLP 2022 ([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](#))

\*Contributed Equally as co-first author

## Leadership Experience (selected experiences)

### Gordon Research Seminar – Tissue Microstructure Imaging, Co-Chair/Co-President

2023 - Present

- Organizing a conference for 200+ Graduate and Post-doctoral students on tissue microstructure imaging involving different modalities.

### Rangoli – South Asian Association at UPenn, Advocacy Chair

2023 - 2024

- Organized 5 cultural and sporting events for 300+ guests and managed \$25000 funding for the events with a team of 8 members.

## 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, R, HTML/CSS

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 - Cricket: Intramurals, Table Tennis: Intramurals