SOVESH MOHAPATRA

soveshm@seas.upenn.edu ♦ +1 (857) 389 - 8786 ♦ soveshmohapatra.com

Education

University of Pennsylvania Anticipated May 2028
PhD Candidate in Bioengineering
Advisor: Dani S Bassett

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

Technical/Language skills

Programming/Scripting Languages: Python (Deep Learning using TensorFlow/Keras, PyTorch), Java Script, R, SQL
Software Packages: MATLAB, COMSOL
Languages: English (Speak, Read, Write), Hindi (Speak, Read, Write), Odia (Speak, Read, Write)

Selected Publications and Conference Proceedings

- **Mohapatra, S.**, et al., TReND: Transformer-derived features and Regularized NMF for neonatal functional network Delineation, (2025). (arxiv), MICCAI'25 (link).
- **Mohapatra, S.,** et al., TReND: Transformer-derived features and Regularized NMF for Delineation of Functional Networks, (2025). Organization of Human Brain Mapping, *Oral and Merit abstract award (Top 0.1% of all submissions)*
- **Mohapatra, S.,** et al., Accurate prediction of 2-year-old neurodevelopmental outcomes in mild HIE with neonatal white matter microstructure, (2025). ISMRM & ISMRT Annual Meeting 2025, *Oral Presentation*
- 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). 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., 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

Selected Leadership Experience

Gordon Research Seminar – Tissue Microstructure Imaging, Co-Chair/Co-President 2023-2025
- Organizing a conference for Graduate and Post-doctoral students on tissue microstructure imaging involving different modalities.

ISMRM Pediatric Study Group 2025, Trainee Representative 2025 - Present
- Representing trainee interests and facilitates communication between trainees and senior researchers.

Selected Professional Experience

UMass Amherst Department of Biomedical Engineering 2021-2023
- Investigated the impact of single- and multi-electrode brain stimulation on structural connectivity, fractional anisotropy, and diffusivity in 50+ stroke patients to advance rehabilitation strategies.
- 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.
- Built ensemble deep learning architectures for brain lesion segmentation in T1w/T2w MRI (Dice ≈ 0.93) and engineered lesseg software for real-time clinical image segmentation.
- Developed machine learning models for prediction (accuracy: 0.92) ROIs potentially getting affected with the electrode position during the brain stimulation.

Massachusetts Institute of Technology CSAIL 2021
- Built DL model to generate language descriptors (60% human understandability) from the visualizations.
- Developed machine learning models (accuracy: 78%) to classify the different sentimental level of sentence.

Extra-Curricular Achievements

- President of India Medal for Exceptional Performance in the field of Innovation. 2016
- Three times TEDx Speaker (TEDxNITSrinagar | TEDxRamjasCollege | TEDxManipal). 2018, 2019