

# SOVESH MOHAPATRA

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## Education

### University of Pennsylvania

PhD Candidate in Bioengineering

Advisor: Dani S Bassett

Anticipated Jun 2027

### University of Massachusetts Amherst

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

May 2023

## Technical/Language skills

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

Software Packages: MATLAB, COMSOL

## Selected Publications and Conference Proceedings

- **Mohapatra, S.**, et al., Is science at war? (2025). *in preparation*
- **Mohapatra, S.**, et al., Efficient Synchronization of Dynamic Control Systems (2025). *in preparation*
- Zhu, T., **Mohapatra, S.**, et al., Mapping functional brain organization using artificial intelligence (2025). Chemical & Biomedical Imaging ([link](#)).
- **Mohapatra, S.**, et al., TReND: Transformer-derived features and Regularized NMF for neonatal functional network Delineation, (2025). 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.
- Built ensemble deep learning architectures for brain lesion segmentation in T1w/T2w MRI (Dice  $\approx 0.93$ ) 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