Deepa Tilwani

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Linkedin Google Scholar

EDUCATION BACKGROUND

University of South Carolina, **Columbia, South Carolina, USA**
Ph.D Student, Computer Science and Engineering, Artificial Intelligence Institute *Aug. 2022 - Present*
Co-advised by Dr. Amit P. Sheth and Dr. Christian O'Reilly
GPA: 3.65/4.0

The LNM Institute of Information Technology **Jaipur, Rajasthan, India**
M.tech, Computer Science and Engineering *Aug 2019 - May 2022*

Govt. Women Engineering College (GWECA) **Ajmer, Rajasthan, India**
B.tech, Computer Science and Engineering *2014 - 2018*

PROFESSIONAL EXPERIENCE

Artificial Intelligence Institute, University of South Carolina (AIISC) **Columbia, SC, USA**
Graduate Research Assistant *Jan. 2022-Present*

- Analysing biosignals (EEG, ECG, fMRI, MRI) and implementing machine learning models.
- Working on implementation on framework to perform dynamic causal modelling integrating with deep learning
- Actively working on Knowledge Infusion in AI models, rare events, misinformation and disinformation
- Working on predicting behavioural scores in indviduals with chronic stroke aphasia and damaged left hemishphere using MRI images.
- Built a pipeline for preprocessing and classifying ASD infants (3-6 months of age) for high likelihood using ECG signals.
- Worked on parameter estimation in ECG using deep learning

Artificial Intelligence Institute, University of South Carolina **Columbia, SC, USA**
Visiting Research Intern *September 2021 - June 2022*

- Adopting, utilizing and developing new approaches, methodologies for Lesion Mapping and classification in Aphasia.
- Actively participating in projects with research group at institute.
- Building and implementing architecture road-maps for next generation Artificial Intelligence solutions for collaborators.

Artificial Intelligence Institute, University of South Carolina **Columbia, SC, USA**
Remote Research Intern *October 2020 - August 2021*

- Planning and executing challenging technical problems.
- Organizing, analysing, pre-processing of ECG signals, using signal processing techniques.
- Designing pipeline for Autism likelihood in infants using Machine Learning.

Indian Space and Research Organization (ISRO) **Jodhpur, Rajasthan, India**
Summer Intern - Web Developer *Jun. 2017 - July. 2017*

- Implemented back end using MySql which is communicating with client, along with two other

team members who wrote the php logic's and designed front end.

PUBLICATIONS

Articles in peer-reviewed journals

- **Tilwani, Deepa**, Bradshaw Jessica, Sheth Amit, and O'Reilly Christian. "ECG Recordings as Predictors of Very Early Autism Likelihood: A Machine Learning Approach." in **Bioengineering**, 2023.
- O'Reilly, Christian, Sai Durga Rithvik Oruganti, **Tilwani Deepa**, and Bradshaw Jessica. "Model-Driven Analysis of ECG Using Reinforcement Learning." in **Bioengineering**, 2023.

Articles in peer-reviewed conferences

- Porwal, Shrusti, Patel Kumar Chintal, **Tilwani Deepa**, and Bansal Shri Krishn. "A Comparative Study and Tool to Early Predict Diabetes Using Various Machine and Deep Learning Based Techniques." **Emerging Trends in Data Driven Computing and Communications: Proceedings of DDCIoT**, 2021.

Posters Accepted and Presented

- **Tilwani Deepa**, Goswami Raxit, O'Reilly Christian, Riccardi Nicholas, Yang Xuan, Shalin Valerie, Shinkareva Sevtalana, Sheth Amit, Desai H. Rutvik, "Predicting Language Outcomes from MRI Post-Stroke: A Machine Learning Approach", Organization for Human Brain Mapping 2023, Montreal, Canada, July 22–26, 2023.
- **Tilwani Deepa**, O'Reilly Christian, Bradshaw Jessica, Sheth Amit. "Interpretable Machine Learning for Predicting the Likelihood of Autism from Infant ECG Recordings", SCAND Research Symposium, Columbia, SC, March 3rd, 2023.

Articles Under Review

- Dalal, Sumit, **Tilwani Deepa**, Gaur, Manas, Jain, Sarika, Shalin, Valerie, and Seth, Amit (2023). "A Cross Attention Approach to Diagnostic Explainability using Clinical Practice Guidelines for Depression". (**Submitted to IEEE Journal of Biomedical and Health Informatics**)
- **Tilwani Deepa**, Saxena Yash, Sheth Amit, Gaur Manas. "**REASON**: REference and Assertions for conSistent evaluatiOn of factual/non-factual seNtences" (**To be Submitted to ACL 2024**)
- **Tilwani Deepa**, O'Reilly Christian, Riccardi Nicholas, Shalin Valerie, Shinkareva Sevtalana, Sheth Amit, Desai H. Rutvik. "Predicting Language Ability from MRI in Post-Stroke Patients: An Advanced Machine Learning Approach". (**To be Submitted to Human Brain Mapping Journal**)

AWARDS & ACHIEVEMENTS

- 2023 Trainee Best Research Presentation Winner ($100) in the South Carolina Autism and Neurodevelopmental Disorders Consortium (SCAND) Symposium.
- 2023 Research Symposium Third Place Poster Award ($200) at, College of Engineering and Computing, University of South Carolina.
- Sept 2021 Jayana Clerk Fellowship, ($15000) For supporting my stay at AIISC as a Visiting Intern Columbia SC
- Sept 2020 2nd Prize, ($100) LINZ Ars Festival - BR41N.IO Hackathon Linz
- July 2020 2nd Prize, ($300) BR41N.IO: Brain-Computer Interface Designers Hackathon Austria
- 2016 1st Place, Poster Presentation on AR and VR Technology GWECA
- 2015 3rd Place, Coding Challenge: Toast to Code- C Language GWECA
- 2012 Silver Prize, National Science Olympiad (NSO)

Advising and Mentoring

- Yash Saxena, Galgotias University, Greater Noida, 2023-Present. **Project:** "REASON: REference and Assertions for conSistent evaluatiOn of factual/non-factual seNtences"
- Nethra Gunti, B.Tech Student, IIIT SriCity, 2022. **Project:** "Phase Shift Analysis in Autism Spectrum Disorder: A Video-Based Study of Parent and Object Interactions"
- Sai Durga Rithvik Oruganti, BSE Student, University of South Carolina, 2022. **Project:** "Phase Shift Analysis in Autism Spectrum Disorder: A Video-Based Study of Parent and Object Interactions"

Teaching Experience

- Conducted instructional sessions on "Introduction to Python", AIISC High School Summer Camp, 2023.
- Teaching Assistant (2019-2021), The LNM Institute of Information Technology: Computer Network, Data Structure, Database Management System and Advance Programming lab work.

Community Service

Journal Reviewer

- Frontiers in Psychiatry, 2023.
- Frontiers in Neuroimaging, 2023.
- MDPI, Advanced Natural Language Processing and Machine Translation, 2023.

Voluntary Experience

- Session Moderator, ACM KDD Workshop on Knowledge-infused Learning, 2023
- Coordinator, AIISC High School Summer Camp, 2023.
- Coordinator, AIISC Retreat 2022. AIISC organized an annual meetup featuring a full-day program and poster presentations.
- Student Member, AAAI (2022-Present).