SARVAGYA GUPTA

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EDUCATION:

University of Massachusetts, Boston

Masters's of Science, Computer Science and Mathematics (3.6/4.0)

New York University Polytechnic School of Engineering.

Bachelor of Science: Electrical Engineering

RELEVANT EXPERIENCE:

Boston Children's Hospital | Summer Internship *June 2022 - Sept 2023*

- Employed unsupervised deep learning (pretrained VGG16 network) to analyze time-frequency (TF) images from iEEG data in pediatric patients with drug-resistant epilepsy.
- Implemented wavelet-based TF image generation for three different frequency bands (spike, ripple, fast-ripple) across 3,351 iEEG contacts.
- Utilized the concept of Unsupervised Activation Energy (UAE) to quantify the visual complexity of TF images across 13 distinct layers, generating a comprehensive set of visual complexity features.
- Successfully demonstrated lower visual complexity in ripple frequency as a potential new interictal biomarker for the epileptogenic zone.
- Developed a fully automated tool to extract interictal signatures of epileptogenicity, aiding surgical planning and outcome prediction.

Self-assigned and relative Projects:

Model Compression:

- Worked on a model compression technique using information bottleneck principle.
- Compressed a model by 99% and achieved mean accuracy of 87% on test set.
- Inspiration from human neural system and lottery ticket hypothesis.
- Trained using half the training dataset.
- Currently my MS Thesis topic.

Flock: Mapping NYC Subways

- Developed an Android app the New York City subway system. Google Play
- Selected for FbStart Bootstrap Track
- Created product of immense need for NYC commuters (personal research).
- Created the database of almost 2,000 datasets for 500 subway stations for best integration with the app
- Co-developed the navigation algorithm being used for the app.

Tata Institute of Fundamental Research | Researcher *August 2019 - Mar 2020*

- Worked on Machine Learning techniques for Quantum Computing
- Developed one of kind reinforcement learning agent to make any quantum state reach uniform superposition.
- Took less than 1000 steps to train the model compared to other works with more than 5000 steps.
- Worked on image reconstruction and anomaly detection on imbalanced dataset for solar magnetic radiations.

Robert Bosch Centre for Cyber Physical Systems | Project Assistant *March 2018 - August 2019*

- Worked at Indian Institute of Science, Bangalore on object and collision avoidance algorithms for cars
- Used computer vision and deep learning techniques to achieve these goals
- Ensured the models are optimised for boards like TX2.
- Worked with Prof Chiranjib Bhattacharyya.

Coding Work:
Github

TECHNICAL SKILLS:

Programming Languages:	**C++, Python, MATLAB, R**
Other:	**Deep Learning libraries, Brainstorm**
Database Management:	**MySQL**