

# Atharva Anand Joshi

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## EDUCATION

### Carnegie Mellon University

Master of Science in Electrical and Computer Engineering - Applied Advanced Study (AI/ML Systems)

GPA: 4.0/4.0

Relevant Coursework: Introduction to Machine Learning for Engineers (TA), Optimization, Natural Language Processing

Pittsburgh, PA

December 2024

### Birla Institute of Technology and Science, Pilani

Bachelor of Engineering in Electrical and Electronics Engineering

GPA: 9.49/10

Relevant Coursework: Neural Networks and Fuzzy Logic (TA), Artificial Intelligence, Object Oriented Programming (Java)

Pilani, India

July 2022

## SKILLS

**Programming:** Java, Python3, C, MATLAB

**Deep Learning:** TensorFlow, Keras, PyTorch, AWS for ML

**Frameworks:** Kalimba Toolkit, LaTeX, Git, Raspberry Pi

## EXPERIENCE

### Hewlett-Packard Inc., Poly

Research and Development Intern

Austin, TX

May – August 2023

- Developed a deep learning model that can suppress stationary and impulsive background noises directly on headsets
- Optimized the inference pipeline on memory, compute and latency for real-time execution on the QCC5171 DSP
- Introduced an efficient approach to Audio ML Development that would make integration into products 6-8 times faster
- Won the 2023 HP Intern Award for this project by securing 4<sup>th</sup> position among ~90 engineering interns

### American Express, Artificial Intelligence Labs

Analyst - Product Development

Gurgaon, India

July - December 2022

- Researched a blend of Tabular Deep Learning models with Tree-based algorithms for the Credit Default Prediction problem
- Enhanced model performance by leveraging extensively hand-engineered features, along with meta features
- Generated valuable business insights pertaining to features selection and effective aggregation of specific temporal features

Analyst Intern

January - June 2022

- Proposed a template-based journey that allows users to seamlessly create and deploy their machine learning pipelines
- Developed a framework that facilitates deployment of end-to-end Self Learning pipelines for Sequence Models

### Adobe Research, India

Research Intern

Bangalore, India

May - August 2021

- Created rich user representations that can be projected onto edge servers, hence powering faster marketing services
- Performed various experiments around the extent of compression and updatability of the representations generated
- Contributed towards a **patent** as a co-inventor - "Generating Concise and Common User Representations for Edge Systems from Event Sequence Data Stored on Hub Systems" (US 17/849,320 - Filed June 24, 2022)

## PROJECTS

### Proactive Servicing: American Express ML Challenge

- Utilized event sequences and demographic data to predict customer intent at the start of the Ask AmEx chat session
- Employed joint training of Bidirectional GRU with Feedforward Networks
- Attained a validation top-5 accuracy score of 0.768 and hence made it to the top 10 leaderboard out of ~80 teams

### Concurrent Vowel Identification Using DNN

- Predicted effects of fundamental frequency difference on the identification scores in a concurrent vowel identification experiment
- Trained a TDNN augmented with a Multi-task Learning setup on the neuron responses from the Auditory Nerve Model

### Quasi-Newton Methods for Deep Learning

- Replicated the results of the NeurIPS 2020 paper: Practical Quasi-Newton Methods for Training Deep Neural Networks
- Analyzed the algorithm theoretically and evaluated its convergence plots against other first and second-order descent methods

## PUBLICATIONS

- **A. A. Joshi**, H. Settibhaktini, and A. Chintanpalli. Modeling concurrent vowel scores using the time delay neural network and multitask learning. IEEE/ACM Transactions on Audio, Speech, and Language Processing, 30:2452-2459, 2022
- **A. A. Joshi**, P. Bhardwaj, and S. M. Zafaruddin. Terahertz wireless transmissions with maximal ratio combining over fluctuating two-ray fading. IEEE Wireless Communications and Networking Conference (WCNC), pages 1575-1580, 2022

## ACTIVITIES

- Joint Coordinator at Ragamalika, the Classical Music and Dance Club of BITS Pilani, Pilani Campus (2020-2021)
- Avid practitioner and performer of Hindustani Classical Vocal Music for the past fourteen years