Atharva Anand Joshi

atharvaa@andrew.cmu.edu • 412-954-7615 • https://www.linkedin.com/in/atharva-anand-joshi/ • https://atharva253.github.io/

EDUCATION

Carnegie Mellon University   Pittsburgh, PA
Master of Science in Electrical and Computer Engineering - Applied Advanced Study (AI/ML Systems)   December 2024
GPA: 4.0/4.0
Relevant Coursework: Intro to ML for Engineers (TA), Intro to Deep Learning (Ongoing), ML with Large Datasets (Ongoing)

Birla Institute of Technology and Science, Pilani   Pilani, India
Bachelor of Engineering in Electrical and Electronics Engineering   July 2022
GPA: 9.49/10
Relevant Coursework: Neural Networks and Fuzzy Logic (TA), Artificial Intelligence, Object Oriented Programming (Java)

SKILLS

Programming: Java, Python3, C, MATLAB
Deep Learning: TensorFlow, Keras, PyTorch, AWS and GCP for ML
Frameworks: Kalimba Toolkit, PySpark, WandB, LaTeX, Git

EXPERIENCE

Hewlett-Packard Inc., Poly   Austin, TX
Research and Development Intern   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 4th position among ~90 engineering interns

American Express, Artificial Intelligence Labs   Gurgaon, India
Analyst - Product Development   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   Bangalore, India
Research Intern   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

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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