Atharva Vikas Jadhav

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Education

The State University of New York, University at Buffalo August 2024 – June 2026
MS in Computer Science & Engineering, Specialization – Research Track (3.81/4.0)
Courses – RL, NLP, Information Retrieval, Adv. Algorithms, Computational Linguistics, Parallel Distributed Processing.

Symbiosis International University
MS in Computer Application, Specialization – AI and Data Science Track (8.83/10.0) Jun 2020 – Jun 2022
Bachelor in Computer Application, Specialization – Software Engineering Track (7.93/10.0) Jun 2017 – Jul 2020

Work Experience

University at Buffalo, Research Assistant Mar 2025 – Present

- Visualized the acoustic separation of over 5,680 unique words, revealing an average phonetic edit distance of 3.5 across pronunciations, by generating 3D t-SNE projections from Wav2Vec2 audio embeddings.
- Demonstrated that synthetic speech has reduced representational depth, as measured by a flatter similarity trajectory across 24 transformer layers, by comparing Wav2Vec2 embeddings on human vs. TTS-generated homophones.
- Contributed in a generative method for creating targeted linguistic foils (distractors) in a Maze app, improving the challenge and learning outcomes for users studying low-resource languages.

Crimsonbeans Ltd, Software Engineer Dec 2021 – Apr 2024

- **(Project - Stix)** – Eliminated a primary cause of user-reported crashes, leading to a 60% reduction in Bluetooth-related support tickets, by overhauling a legacy connection module in the React Native application.
- **(Project - Iguanalytics)** – Ensured a 99.9% successful delivery rate for thousands of daily price alerts, providing users with reliable, real-time insights, by building a robust notification pipeline with Azure Logic Apps and MSSQL.

Projects

Independent Study (Thesis advisor: Dr. Nasrin Akhter) Dec 2024 – Present

- Architecting a generalized multilingual SER model that rivals specialized systems, targeting an average performance within 20% of single-language SOTA models, by fine-tuning Wav2Vec2 with a multi-task ASR approach.

Augmentative and alternative communication for societal good (GitHub) Mar 2025 – May 2025

- Created an efficient, on-device conversational assistant for AAC users, packaged into a 5GB deployable model that runs without an internet connection, by fine-tuning and quantizing LLMs like LLAMA3-8B for local inference.

Traffic light automation using RL to facilitate emergency vehicles (GitHub) Jan 2025 – Apr 2025

- Minimized emergency vehicle delay at intersections, reducing average wait times by 45% compared to a standard timed system, by implementing and comparing a suite of RL algorithms (Q-Learning to DDQN) in the SumoRL environment.

Wikipedia Chat Bot (GitHub) Oct 2024 – Dec 2024

- Built a scalable search and summarization system by scraping 50,000 Wikipedia summaries, indexing them with SOLR, and deploying a Flask server with a React frontend on GCP.
- Designed an intelligent response pipeline using zero-shot classification for message categorization, integrating a Blenderbot based chatbot for casual conversations and T5 for summarizing SOLR query results.

In-place convolution with OpenMP (GitHub) Oct 2024 – Oct 2024

- Developed a C++ program applying a 3×3 matrix kernel to a 1D vector (representing a 2D float array) using multithreading with OpenMP, achieving 70% efficiency on 64 processors in an HPC environment.

Certificates, Contributions & Skills

- **Certifications:** Machine Learning by Andrew Ng, The Complete 2021 Web Development Bootcamp by Angela Yu, Architecting with Google Compute Engine.
- **Volunteering:** Built & maintained the website of Life Catalyst Foundation, an NGO that works to improve the lives of marginalized communities, using React, to create a user-friendly & informative experience for website visitors.
- **Skills:** React, NLP, PyTorch, OpenMPI, OpenMP, CUDA, Cloud Computing & Machine Learning.