Aditya Jadhav

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Education

University of Arizona Tucson, Arizona

BS Computer Science (Minor: Data Science and Stats) ***January 2021 - December 2024***

GPA: 3.93/4.0 Global Wildcat Scholar

Technical Skills

Languages: Python, Java, C, SQL, JavaScript, Prolog
Frameworks/Tools: React.js, AWS, Node.js, MongoDB, PostGreSQL, Express, Flask, Jenkins, Git, Unix
Libraries: TensorFlow, Scikit-learn, HuggingFace, Pandas, Matplotlib, NumPy

Experience

Software Engineering Intern October 2023 - Present

Astrocomm Technologies | ***C, Python, ElasticSearch, wxPython, Jenkins***

- Develop Graphical User Interface dashboards in Python, wxPython to gather real time metrics using a USB interface from an ADC. Implemented Elasticsearch for efficient real-time data ingestion and analysis.
- Write C code for Arduino to handle 12 bit ADC signals and throughput data to USB interface.

Undergraduate Research Assistant Feb 2023 - Present

University of Arizona | ***Python, Scikit-learn, NumPy, Bash***

- Currently researching under Dr. Chicheng Zhang on Active Learning using early stopping gradient descent. Developing an algorithm to optimize for training labels under Non-Convex Optimization. Analyze data in Matplotlib and NumPy and test/develop code on UA's High Performance Computing platform and perform literature reviews.

Undergraduate Research Assistant Novemeber 2023 – Present

Visual and Autonomous Exploration Lab, UA | ***Python, TensorFlow***

- Implemented modular Neural Networks from scratch including various activation, loss and backpropagation for quick implementation of any NN. My position also involves theorizing research for combating bias and making AI interpretable.

Undergraduate Research Programmer May 2021 – Jan 2023

University of Arizona - ToMCAT Project | ***Python, Unix, Git, JS, Flask, C++***

- Developed a visualisation dashboard to display captured sensor data using wxWidgets, MQTT and C++. Achieves monitoring of data and various parameters in 50+ tests, with 2 devices updating data every few ms.
- Built a web application using Flask, Python, GoogleSpeech API, HTML, JS to record entrainment data.

Senior Teaching Assistant - Java/OOP January 2021 – December 2023

Projects

Chess Website | ***React, NodeJS, Express, PostGreSQL, AWS, Git***

- Developed an online chess platform, capable of supporting over 1000 simultaneous players along with puzzles and engine analysis. Implemented using Express, NodeJS with StockFish engine (chess algorithm), and React.
- Integrated Socket.IO for real-time multiplayer gaming experience and utilized AWS RDS/SQL for efficient user and puzzle data management.Configured AWS development environments and automated database management tasks, including writing Python scripts to preprocess and populate the PostgreSQL database with chess puzzles.

Chess Video to PGN Converter | ***TensorFlow, OpenCV, CUDA, Python***

- Developed a computer vision solution using TensorFlow, CUDA for converting a video recording of a chess game into Portal Game Notation. Developed as an alternative to $1000 DGT boards for digitisation of chess games.
- Implemented in OpenCV for chessboard and piece recognition and TensorFlow for training ML models.

IBM Watson-Inspired Q&A Program with Web Crawling | ***Java, Lucene, HuggingFace, Python***

- Constructed a Q&A program akin to Watson by indexing Wikipedia pages using Apache Lucene and using HuggingFace BERT for likely answers. Webcrawler uses Python and BeautifulSoup4.

Open Source Contributions to Lichess.org | ***TypeScript, Scala, Git***

Relevant Coursework

- Unix and System Programming
- Machine Learning
- Text Retrieval and Web Search
- Database Design
- Computer Networking
- Web Development
- Data Structures and Algorithms
- Computer Organisation
- Software Development and OOP
- Compilers
- Cloud Computing
- Computer Vision
- Parallel and distributed computing