Harikrishna Vardhineedi

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Education

University of California, Irvine Jun 2026
BS in Computer Science, Artificial Intelligence Specialization *Irvine, CA*
GPA: 3.87
Relevant Coursework: Machine Learning, Artificial Intelligence, Databases, Data Structures & Algorithms, Quantum Computing, Computer Systems, Computer Architecture, Python, C/C++, Linear Algebra, Automata Theory, Statistics, Discrete Mathematics, Multivariable Calculus

Experience

Pickaxe Jun 2023 – Aug 2023
Software Engineering Intern
- Engineered a generative AI-driven Twitter marketing automation tool within 6 weeks, streamlining company marketing.
- Integrated GPT-4, Twitter API, LangChain, and FastAPI, reducing tweeting time by 80% while maintaining engagement.
- Automated end-to-end testing with Python Unittest, ensuring robust, maintainable code with 99% test coverage.

University of California, Irvine Sep 2023 – Present
Lead Undergraduate Teaching Assistant
- Managed a 20-member teaching team using Agile Sprint Methodology, coordinating logistics for 600+ students per term.
- Automated exam logistics using Pandas, NumPy, and LaTeX, cutting logistic time by 50% and eliminating manual errors.
- Developed an ID-check system leveraging UCI Photo Roster API, Pandas, and LaTeX, reducing exam turn-in time by 80%.

NASA - National Aeronautics and Space Administration Jun 2023 – Aug 2023
NPWEE Technical Engineer
- Co-led a 13-engineer team to design a Python-based AI-driven telescope software for autonomous celestial body tracking.
- Developed a concept prototype using OpenCV, NumPy, and SciPy, greatly improving perspective on resource allocation.
- Conducted algorithm performance testing, optimizing image processing speeds by 25% for low-latency tracking.
- Authored and presented a 7-page technical proposal to NASA review boards, detailing system architecture and feasibility.

Projects

Skill Surge Bot | *Node.js, MongoDB, AWS Cloud*
- Developed and deployed a productivity-focused Discord bot in Node.js, gaining 1,000+ users in its first six months.
- Deployed using AWS EC2, ECS, Fargate, and Auto Scaling Groups to handle 1000+ concurrent users with 99.9% up-time.
- Utilized MongoDB indexing for persistent storage, optimizing database queries to reduce retrieval latency by 35%.
- Implemented Pomodoro technique and spaced repetition algorithms, increasing productivity by 45%, as reported by users.

Recurrent Neural Network Toxicity Filter | *Python, Pandas, Tensorflow, Keras*
- Developed a Recurrent Neural Network (RNN) using TensorFlow and Keras to detect six toxicity targets in text messages.
- Implemented text vectorization, word embeddings, LSTM layers, and a 50% dropout rate, achieving 99.9% test accuracy.
- Leveraged t-Distributed Stochastic Neighbor Embedding to reduce dimensionality of data, sharply expediting processing.

CS Department Search Engine | *Python 3, Flask, Next.js (React.js)*
- Engineered a scalable search engine indexing 55,000+ UCI web pages, achieving sub-0.3s query response times.
- Optimized search efficiency using Google's PageRank, tf-idf, and cosine similarity, retrieving some queries in under 0.1s.
- Developed a Next.js frontend with a Flask REST API, ensuring seamless, real-time interactions and efficient data retrieval.

OnTape | *(PERN Stack) — PostgreSQL, Express.js, React Native, Node.js, TMDb API, Firebase*
- Engineered a cross-platform mobile application using React Native for iOS and Android for discussion about movies.
- Architected a PostgreSQL database to query 100,000+ records in under 10ms using partitioning, indexing, and PgBouncer.
- Integrated Firebase Authentication and Firestore, ensuring secure and scalable user auth for unlimited Google accounts.
- Leveraged TMDb API to fetch real-time movie metadata, enhancing user engagement through interactive recommendations.

Technical Skills

Languages: Python, Java, C, C++, C#, Golang, Java, Kotlin, R, Matlab, SQL (MySQL, PostgreSQL), JavaScript, TypeScript, HTML/CSS
Frameworks & Libraries: React/React Native, Next.js, Angular.js, Express.js, Node.js, Flask, Boostrap CSS, Bulma, SCSS/Sass, PyTorch, Tensorflow (Artificial Intelligence/Machine Learning/Deep Learning/Natural Language Processing), Keras, Pandas, Numpy, Matplotlib
Tools & OS: Amazon Web Services (AWS) Cloud, Google Cloud Platform (GCP), Git, Firebase, Figma, Linux