KESHAVAN SESHADRI

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SKILLS

Languages: Python, C++, C, JavaScript, Java, C#
Full Stack: React, Flask, **Fast API, Docker,** Django, Ruby, K8s, Git
Machine Learning: Pytorch, Keras, Numpy, Scipy, Pandas
Others: AWS, AMBER, Unity, OpenGL, WebGL, LaTeX, SQL, Jenkins

EXPERIENCE

Prudential Financial, Senior Machine Learning Engineer, Newark, NJ — Aug 2024 – **Present**

- Developed and deployed a real-time **Table Augmented Generation (TAG)** system using **AWS, DuckDB, FastAPI, Gateway, GPT-4**, to parse, ingest, and enable **natural language querying** of complex **insurance** and **financial data** (Excel, CSV, Parquet), powering Prudential's main **chatbot** for **thousands of users** across the US and Japan, showcasing strong **independent work** and **cloud architecture** skills.
- **Enhanced** the **prompt management** and routing framework, improving **scalability** and enabling its use for **AI agent development**, optimizing performance for **large-scale applications**.
- Developed an **automated test system** for daily **GenAI API validation** and **regression testing** across **Dev, QA, and staging environments**, ensuring **reliability**, detecting critical bugs, and driving **cross-team collaboration** for **10+ project onboardings**.

Synergii, Technical Founder, New York, NY — Nov 2023 – July 2024

- Built an innovative grant discovery and financing platform from scratch using **Natural Language Processing, Retrieval-Augmented Generation (RAG), GPT4, BERT, Docker, AWS App Runner, RDS, Cognito, EC2, GitHub Actions CI/CD, Flask, and React**.
- Designed in Figma and developed the **MVP (Minimum Viable Product)** from **0 to 1**, our product vision aimed at integrating public datasets to capture a **$34 billion** market opportunity with targeted early revenue projections of **$85 million**.
- Validated product requirements through accelerator interviews, gained traction among nonprofits, entrepreneurs, and SMBs, and secured a spot in the **Cornell Johnson Summer Startup Accelerator**.

BrowserStack, Software Engineer, Mumbai, IN — Jul 2022 – Dec 2022

- Continuously updated **test frameworks (Playwright, Puppeteer, Cypress**) on **AWS EC2** remote machines for enhanced functionality.
- Improved product stability and reliability by debugging and improving performance, using **Node.js, Python, Ruby on Rails**.

Center for Computational Natural Sciences and Bioinformatics, Graduate Researcher, Hyderabad, IN — May 2019 – July 2023

- Researched in **computer-aided drug design for healthcare**, using **all-atom molecular dynamics simulations** to reveal metastable states in drug binding to **G-Protein Coupled Receptors (GPCRs**) through Potential of Mean Force and K-Means Clustering in **AMBER**. (GitHub)
- Utilized **correlation analyses** and applied **machine learning** algorithms (Linear Regression, Decision Trees, Random Forest, XGBoost, K Nearest Neighbours) to find crucial residues and understand existing reservations, helping automated ligand dynamics exploration.

Couture.AI, Full-Stack AI Developer Intern, Bangalore, IN — Sep 2021 – Nov 2021

- Created GUI platform for training **ResNet, Inception, and Deep Speech** models with Docker, Kubernetes, and Django.
- Engineered AI platform for news video upload, flagging Violent and NSFW content, and obtaining censored versions.

Mitacs, Globalink Research Intern, Queen's University, Remote (Ontario), CA — May 2021 - Sep 2021

- Developed physics-based machine learning models under Dr. Farnaz Heidar-Zadeh to predict quantum-mechanical observables, including energies and forces, using the QM17 dataset.

Google Summer of Code, **Research Project**, Remote (Pittsburgh), US (Active Learning Environment in 3Dmol.js) — May 2019 – Aug 2019

- Extended 3DMol.js for clicker based active learning and Flask server for interactive 3D molecule viewing, synchronized state across 1000s of users via web sockets with minimal latency, allowing users to use it even on iPhone or iPad in the classroom.

Virtual Labs, Research Assistant, Hyderabad, IN (Data Structures Virtual Lab) — May 2018 – Nov 2018

- Developed a gamified e-learning platform on data structures & algorithms with JavaScript libraries, used by **1M students in India**.
- Committed to empowering 200 under-represented college students by fostering strong technical skills and communication skills.

EDUCATION

Cornell University, New York, NY
Master of Engineering in Computer Science | GPA: 3.92/4.0
Relevant Coursework: Natural Language Processing (NLP), Computer Vision (CV), Machine Learning Engineering, VR/AR, Algorithms for Applications

IIIT Hyderabad, India
Master's by Research in Computational Natural Sciences | (Thesis)
Bachelor of Technology in Computer Science | GPA: 8.15/10.0
Relevant Coursework: Distributed Systems, Data Structures, Deep Learning, Optimization Methods, Data Analytics, Statistical Methods in AI

PUBLICATIONS

- **Keshavan Seshadri**, Marimuthu Krishnan; **Molecular Dynamics and Machine Learning Study of Adrenaline Dynamics in the Binding Pocket of GPCR, Journal of Chemical Information and Modeling**, July 2023 DOI: 10.1021/acs.jcim.3c00401
- **Keshavan Seshadri**, Peng Liu, David Ryan Koes; **The 3Dmol.js learning environment: A classroom response system for 3D chemical structures. Journal of Chemical Education**, Aug 2020. DOI: 10.1021/acs.jchemed.0c00579