Harshitha Puttaswamy

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PROFESSIONAL SUMMARY

- Skilled Software Engineer with experience in full-stack development, backend engineering, and AI-driven applications, specializing in MERN, Django, and cloud-based solutions.
- Proficient in Python, TypeScript, and C, with expertise in ML, cloud computing, and reinforcement learning; built scalable applications like an LLM-powered chatbot, a Splitwise-inspired expense tracker, and Autokube for Kubernetes automation.
- Experienced in backend development (Django, PostgreSQL, REST APIs), database optimization, unit testing (Pytest, 98%+ test coverage), and CI/CD pipelines (GitHub Actions, Docker, Kubernetes).
- Strong research background in Multi-Armed Bandits, Deep Q-Learning, and AI-driven cybersecurity solutions, with expertise in ML model deployment and optimization.

PROJECT EXPERIENCE

Splitwiser – A Splitwise clone | Full Stack Development, LLM *June 2024 - Present*

- Created a Splitwise-inspired application featuring receipt scanning via camera or file upload, group and non-group expense tracking, and dynamic graphical and manual split functionalities.
- Leveraged Google Gemini API to convert receipt images into JSON data, to facilitate graphical expense visualization.
- Utilized NextJS for UI and API development, Google Firebase for backend services, and Firestore for storing receipt data.

Iterative voting for committee selection with Multi-Arm Bandits | Research Project *June 2024 – December 2024*

- Designed and implemented a dynamic Multi-Armed Bandit (MAB) framework to model iterative decision-making processes, optimizing voter utilities and drawing parallels to complex bidding strategies in ad platforms.
- Developed scalable algorithms for strategic optimization in multi-agent systems, leveraging Integer Linear Programming (ILP) to solve resource allocation and ranking problems akin to budget distribution.
- Conducted extensive experimental analysis on preference aggregation and rule convergence, producing insights on maximizing utility and satisfaction, applicable to auction mechanisms and real-time bidding environments.

LLM based chatbot | Full Stack Development, Amazon Bedrock *August 2024 - October 2024*

- Developed an intelligent chatbot application by integrating Llama model and implementing advanced response mechanisms, including RAG (Retrieval-Augmented Generation) to provide context-aware user interactions.
- Deployed the application on AWS EC2, utilizing AWS Bedrock API for seamless integration of Large Language Model, ensuring scalability and performance.

Autokube | Startup Project *August 2021 - March 2022*

- Led the development of the web application for automating Kubernetes cluster creation and modification.
- Utilized MongoDB, Express.js, React, Node.js (MERN) stack for formulating APIs to initiate scripts, triggering a series of workflows for managing the backend Kubernetes clusters.

PROFESSIONAL EXPERIENCE

Fyle Technologies Ltd, *Backend Developer, Internship* **|** Bangalore, India *March 2022 - December 2022*

- Developed APIs using Django, Angular, and PostgreSQL (PSQL), contributing to 8 new features, improving market appeal.
- Streamlined PSQL migrations by adding fields and seamless frontend-backend integration, enhancing user experience.
- Added Unit and Integration tests with Pytest, achieving 98%+ test coverage across backend repositories.
- Introduced GitHub Actions for Continuous Integration, reducing review time by 50% and improving code quality.
- Automated pull request merging and optimized deployment pipelines, boosting scalability and performance by 5%.

PUBLICATIONS

- Vivek Kuchibhotla., P Harshitha., Shobhit Goyal (2020). An N-Step Look Ahead Algorithm Using Mixed (On and Off) Policy Reinforcement Learning. IEEE, https://doi.org/10.1109/ICISS49785.2020.9315959
- Vivek Kuchibhotla., P Harshitha., Divitha Elugoti (2020)., Combinatorial sleeping bandits with fairness constraints and long-term non-availability of arms. IEEE, https://doi.org/10.1109/ICECA49313.2020.9297371

EDUCATION

Binghamton University, State University of New York
Master of Science in Computer Science *December 2024*

TECHNICAL SKILLS

Programming Languages and DB: C, Python, Java, JavaScript, TypeScript, MongoDB, PostgreSQL, MYSQL, Firebase
Frameworks and Software's: AWS, Amazon Bedrock, AWS Lambda, Dynamo DB, EC2, ExpressJS, ReactJS, NodeJS, Django, CI/CD, Pytest, Git, Linux, Kubernetes, TensorFlow, Keras, Pytorch, Pandas, Jupyter Notebook, Google Colab