K S Mohan Kumar

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Education

Indian Institute of Technology, Madras **Aug. 2019 – May 2024**
B. Tech in Mechanical Engineering and M.Tech in Data Science *CGPA : 9.17/10*

Experience

Oracle Corporation (OCI Generative AI Services) **July 2024 – Present**
Member of Technical Staff *Bangalore, Karnataka*

- Added TypeScript SDK code for customers to easily integrate and use OCI Generative AI Agents API endpoints.
- Designed and automated an end-to-end resource lifecycle workflow for Generative AI Endpoints using Python/Java/CLI SDKs, reducing manual effort by 8 people per bug bash session.
- Integrated usage of `promptfoo` to evaluate and assess model vulnerabilities and optimize the selection of internal models based on cost and response quality.
- Led the full deployment of OCI Generative AI services in the London region for critical government customers, delivering complete infra and application setup — from node pool provisioning to LLM model serving — as part of the region expansion initiative using Terraform.
- Increased code coverage of the Control Plane component from 48% to 61% by adding comprehensive JUnit test cases.
- Core member of a 5-person team that built a Generative Chat SaaS application for 60,000+ Oracle employees, that helps boosting daily task efficiency by more than 50%. Owned critical components including load testing, canaries, file extraction, operations, and client-side monitoring, while gaining expertise in building custom agents with UI using open-source frameworks (LangGraph, Openwebui) and workflow orchestration.

Centre for Responsible AI, IIT Madras **May 2024 – Sept 2024**
Research Intern *Remote*

- Conducted a comprehensive literature survey on explainable reinforcement learning (XRL) methodologies specifically for trajectory analysis in complex environments.
- Created novel approach of using Inverse Reinforcement Learning (IRL) to provide trajectory explanations from underlying unknown reward functions from expert trajectories, enabling effective ranking in single agent environments.

Projects

Pioneering Analytical and Solution Strategies for the Flatland Challenge | *Dual Degree Project*

- Evaluating a range of benchmark Multi-Agent Reinforcement Learning (MARL) algorithms like MA-PPO, MAMBA to identify optimal strategies for tackling the Flatland Challenge, aiming to set new performance standards.
- Designed and implemented feature extraction techniques (global state, local tree-based views) and reward functions (including shaping) to facilitate effective learning

Other Critical Projects | *Reinforcement Learning, Computer Vision*

- Demonstrated deep interest and expertise in Reinforcement Learning by designing and implementing advanced algorithms such as Lin-UCB, KL-UCB, Q-Learning, SARSA, DQN, Actor-Critic, and TD3 across applications including game simulations, robotics, and control environments.Built a robust simulation framework for Multinomial Logit Bandits using the AT-DUCB algorithm.
- Pursued diverse machine learning projects such as LSTM-based music generation, surface roughness prediction using Mask R-CNN and GLCM, and humanoid locomotion in pybullet environments, reflecting versatility and applied problem-solving skills in AI and vision.

Technical Skills, Courses and Internships

Internships: Oracle Corporation, Axis Bank, Forbes Marshall,Cogniquest AI
Languages: Python, Java, JavaScript, SQL
Technologies/Frameworks: Linux, Jenkins, GitHub, JUnit, Docker, Kubernetes, Terraform, SvelteKit
Courses: Pattern Recognition and Machine Learning, Mathematical Foundations of Data Science, Reinforcement Learning, Multi-Armed Bandits, Big Data Laboratory, Probability, Statistics and Stochastic Process, Non Linear Optimization, Applied Statistics

Scholastic/Extracurricular Achievements

- Selected as one of the Top 6 candidates in RMO (2018) from Tamil Nadu to represent in the Indian National Mathematics Olympiad (2019).
- Ranked among the top 5% of graduating students in my department.
- Highly accomplished powerlifter, achieving a 2nd place ranking in institutional competitions.