Sharat Chandra Madanapalli

Visa: Permanent Resident
✆ (+61) 415 398 547
✉ sharat910@gmail.com
LinkedIn Profile
Personal Website

Work Experience

Jul 2023 – Ongoing
Team Lead: Data and AI, Canopus AI.
- Lead data-driven and AI-focused initiatives at Canopus: responsible for strategy, roadmaps, and implementation of scalable AI-powered analytics solutions for network operators worldwide.
- Designed and developed a GenAI interface that uses fine-tuned Text2SQL model and a custom RAG stack to let users intuitively interact with complex datasets, increasing adoption and operational efficiency by 5x.
- Led the development of an ML-powered anomaly and drill-down analysis solution, reducing time to triage and resolve network issues by 10x by surfacing insights from multi-million-row datasets.
- Led the migration of ML/AI stack to Google Cloud (GCP) leveraging modern MLOps and DataOps practices on platforms like Big Query and Vertex AI, with future expansion plans to AWS and Snowflake.
- Architected and deployed a robust, high-throughput data pipeline for ingestion and analytics workloads exceeding 5 billion events per day, leveraging state-of-the-art tools like Kafka, MLFlow, DBT, ClickHouse and Superset.
- Managed non-technical duties, including team coaching, sprint planning, and executive-level reporting.

Apr 2022 – Jun 2023
Senior Data Scientist, Canopus AI.
- Established and led the data team, implementing best practices and a diverse data stack (Airflow, Jupyterlab, TimescaleDB, Metabase) to create robust data architecture, build resilient ETL pipelines, facilitate ad-hoc analysis and develop data products that delivered actionable insights.
- Developed and deployed *FlowFormers*, a state-of-the-art transformer-based model for traffic classification, efficiently classifying millions of flows per day, with continuous validation, monitoring, drift detection, and periodic retraining to ensure sustained model performance and accuracy.
- Created and productized other ML models to generate key metrics defining application performance (e.g., video buffering, call drops, gaming glitch ratio) and an intuitive health score across network levels.
- Led successful product trials by crafting data-driven solutions to address the gaps and requirements of major operators like Telstra, Optus, NBN (Australia), Comcast, Charter (USA), Reliance Jio, and Vodafone (India).
- Engineered interactive dashboards to derive actionable insights from complex datasets.

Oct 2019 – Apr 2022
Software Engineer: Data and ML, Canopus AI.
- Implemented high-performance packet processing software in Golang, utilizing a microservices architecture to extract and analyze critical network KPIs. Leveraged tools like gRPC, Go Profilers and Prometheus tracing.
- Designed and implemented end-to-end machine learning pipelines from prototyping, continuous model training, evaluation, and production deployment for functions like real-time classification, anomaly detection, and performance forecasting. Utilized Scikit-Learn, PyTorch, MLflow, pandas, plotly and tools like git and docker.
- Implemented data quality checks, feature engineering pipelines, and ETL jobs on SQL databases to ensure data integrity and model reliability with continuous monitoring and alerting.

Nov 2019 – Jun 2020
Research Engineer, Telstra.
Analyzed network traffic datasets of Telstra 4G deployment to assess the feasibility of generating QoE metrics for 4k video streams. Work included setting up a lab environment with 4G modems, creating network interference and procuring and analysing datasets.

Feb–May 2020
Research Engineer, ETH Zurich.
Leveraged programmable data planes and packet scheduling algorithms to build a data-driven self driving network to improve Internet application performance that can be deployed in ISP networks.

Sep 2018 – Mar 2019
Research Engineer, Cisco.
Built time-series machine learning system to model and monitor encrypted carrier wifi-calling sessions in enterprise networks. The system secured the enterprise by blocking malicious traffic other than wifi-calls.

Education

2018–2022
Doctor of Philosophy (Ph.D.) - Machine Learning on Network Measurements,
University of New South Wales (UNSW) Sydney.

2014–2018
Bachelor of Engineering (Hons.) - Computer Science,
Birla Institute of Technology and Science (BITS) Pilani, GPA – 9.4/10.

Patents

Sept 2023 **Cloud Gaming Monitoring Apparatus and Process**, Filing Number: 2023903009,
Minzhao Lyu, Sharat Chandra Madanapalli, Vijay Sivaraman, Himal Kumar.

Nov 2021 **Network Traffic Classification**, Filing Number: 2021903718,
Sharat Chandra Madanapalli, Vijay Sivaraman, Himal Kumar.

Sep 2020 **Apparatus and process for detecting and estimating user experience of online games**,
PCT/AU2020/050935, Sharat Chandra Madanapalli, Hassan Habibi Gharakheili, Vijay Sivaraman.

May 2020 **Process and Apparatus for Estimating Real-Time Quality of Experience**, PCT National Phase
Australia: 2020274322, Sharat Chandra Madanapalli, Hassan Habibi Gharakheili, Vijay Sivaraman.

Feb 2020 **Network Bandwidth Apportioning**, PCT National Phase Australia: 2020228672,
Vijay Sivaraman, Sharat Chandra Madanapalli, Hassan Habibi Gharakheili, Himal Kumar.

Achievements

2019-22 **World-wide conference travel grants**, *as a PhD Student*, UNSW Sydney.
Received several travel grants to present my research around the world in top AI and networking conferences.

May 2020 **Invited Data Science Talk**, Telstra Data Science Interest Group.
Presented the latest data science tools and techniques used in the 4G project to analyze complex datasets.

Nov 2019 **Invited P4 Workshop Instructor**, Telstra Next Generation Networking Summit.
Instructed network engineers on building modern networked systems using P4-programmable data planes.

Sep 2019 **Invited Speaker**, Australian Network Operators Group (AUSNOG) Summit.
Presented my work in gaming detection and latency measurements to network operators across Australia.

Jun 2019 **Best Dataset Award**, TMA Conference.
Received the award for curating Netflix streaming datasets collected over 3months across 9 home networks.

July 2018 **Recipient of UNSW Tution Fee Scholarship (TFS)**, UNSW Sydney.
Received the competitive TFS scholarship to pursue my Ph.D.

May 2018 **High Distinction With Honours in Computer Science**, BITS Pilani.
In top 2% of the computer science class in first-ranked private engineering university in India.

Mar 2018 **Winner of Exxon Mobil Signage Detection Competition**, BITS Pilani.
Winning proposal to detect signage using deep learning based object recognition algorithms.

Feb 2016 **Finalist in Build the Shield Cybersecurity Challenge**, Microsoft.
Ranked 15 among top 50 teams in India solving cyber security puzzles (hacks/exploits etc.) using programming.

Feb 2014 **Top Rank in National Science Talent Search Exam (NSTSE)**, Unified Council India.
All India Rank 51 amongst a million students across schools in India

Skills

Areas GenAI, Machine Learning, Data Science, Team Leadership, Product Development

Programming Python, Golang, Typescript, Java, SQL

Frameworks LangChain, LangGraph, Pandas, PyTorch, Scikit Learn, Plotly, Streamlit

Utilities Git, Docker, Jupyter

Languages English, Hindi, Telugu