Sundar Sripada Venugopalaswamy Sriraman

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F1 – OPT (authorized to work in the US, sponsorship not required)

Machine Learning Engineer | AI Engineer

Experience

Research Engineer *Jan 2025 – Present*
AI Safety Camp *Remote*

- Conducting empirical research on adversarial behaviors in LLMs trained with PPO and DRRN policies, with the goal of developing representations to classify and counteract adversarial reward optimization strategies

Software Engineer Intern *Jun 2023 – Aug 2023*
Hewlett Packard Enterprise *San Jose, CA*

- Enhanced scale characterization of Aruba's network management tool by developing Virtual Machine (VM) simulation support in Python, doubling the tool's device handling capacity by up to 2,000,000 simulated devices
- Developed CLI-based VM simulation functionality that enables users to simulate VMs within Docker containers deployed with Kubernetes, achieving fast on-boarding (<1 minute per VM) to enhance scalability
- Collaborated in a cross-functional team writing SQL code for extracting VM system information, integrating it into the simulation framework to enable scale simulation and support data-driven decisions for cloud infrastructure

Graduate Research Assistant *Aug 2022 – May 2023*
The University of Texas at Austin *Austin, TX*

- Built TensorFlow-based activity recognition model with 87% classification accuracy across 4 tool-use behaviors, enhancing ergonomic study of user-tool interaction Paper
- Led a team of 3 students in a data collection project using a 9-DOF IMU on a robot arm that emulates human performance
- Engineered a data processing pipeline with Pandas to analyze a dataset of over 10,000 entries for activity classification
- Implemented an ML pipeline in TensorFlow Lite (TFLite) and MLFlow for logging utilizing convolutional neural networks (CNN) for real-time edge inference on a Raspberry Pi, achieving 162 ms per prediction for activity classification

Research Software Engineer *Oct 2020 – Jul 2022*
The International Institute of Information Technology *Hyderabad, India*

- Designed classification and regression models in scikit-learn to predict the presence and magnitude of drift in self-driving vehicles, achieving prediction accuracy of up to 92% with PyTorch
- Automated end-to-end LIDAR data transformation for 100k+ data points of environments in autonomous systems using custom Python APIs, cutting model training prep time by 70%
- Enabled seamless integration with PyTorch DataLoader, accelerating training cycles and reducing human preprocessing errors by over 90%
- Collaborated with a cross-functional team to implement a model-predictive controller exploiting just-in-time compilation in JAX to generate 1000 navigational trajectories per second Paper
- Built a custom triplet loss function to train a multi-modal Convolutional Neural Network (CNN) in PyTorch, effectively minimizing drift in autonomous driving and improving performance by up to 76.76% over previous SOTA Paper

Publications

1. New, R, Salazar, CD, Bendaña, J, Sripada V. S., S, Chinchali, S, Fleischmann, KR, & Longoria, RG. "Design, Development, and Testing of a Smart Hand Tool: Achieving Work Task Recognition Using Synthetic Data and Edge Intelligence." Proceedings of the ASME 2024 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference. Volume 2A: 44th Computers and Information in Engineering Conference (CIE). Washington, DC, USA. August 25–28, 2024. V02AT02A026. ASME. https://doi.org/10.1115/DETC2024-142360
2. Shrestha, Sloke, Sundar Sripada V. S., Asvin Venkataramanan. "Style Transfer to Calvin and Hobbes comics using Stable Diffusion." arXiv:2312.03993, 2023.

3. M. Omama, S. V. S. Sundar, S. Chinchali, A. K. Singh and K. M. Krishna, "Drift Reduced Navigation with Deep Explainable Features," 2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Kyoto, Japan, 2022, pp. 6316-6323, doi: 10.1109/IROS47612.2022.9981330.
4. M. Omama, S. S. V. S., S. Chinchali and K. M. Krishna, "LADFN: Learning Actions for Drift-Free Navigation in Highly Dynamic Scenes," 2022 American Control Conference (ACC), Atlanta, GA, USA, 2022, pp. 1200-1207, doi: 10.23919/ACC53348.2022.9867473.

Projects

Exposing Gaps in Multilingual LLM Datasets and Benchmarks *Feb 2025*
AI Safety Fundamentals *Project Link*

- Researched mistranslation challenges in Multilingual LLMs, analyzing impacts on training, inference, benchmarking, and AI safety through dataset biases and evaluation gaps.

Style Transfer with Stable Diffusion on Calvin and Hobbes Comics *Nov 2023*
ECE 371Q Digital Image Processing – Ram's Horn Best Project Award *Paper, Video*

- Fine-tuned Stable Diffusion (GAN) on 11,000+ custom comic images over 30,000 training steps, producing high-fidelity style transfer on Calvin and Hobbes comics, winning the Ram's Horn Best Project Award (top 1 of 40+ entries)

Skills

Software Development | Data Processing Pipelines | TensorFlow & PyTorch Modeling | ML Inference Deployment | LIDAR Data Transformation | Autonomous Navigation | Adversarial Reward Optimization | Parallel Programming | Reinforcement Learning | Multilingual LLM Evaluation | Data Collection & Automation

Programming Languages	Python | C | C++ | R | MySQL | Java | Bash | MATLAB | HTML | CSS
Machine Learning	PyTorch | TensorFlow | TensorFlow Lite | XGBoost | LangChain | PineCone |
Data Engineering	pandas | numpy | ETL Pipelines | Apache Spark | Apache AirFlow | MLFlow | Weights & Biases
Systems & Cloud Computing	Docker | Kubernetes | Raspberry Pi | Linux | Real-Time Inference | Google Cloud Platform (GCP) | AWS S3 | EC2 | Lambda | Glue
Tools	Git | CI/CD | Jira

Education

The University of Texas at Austin *Dec 2024*
Master of Science in Engineering (MS), Electrical and Computer Engineering
Relevant Coursework: Algorithms | Applied Machine Learning | Advanced Computer Vision | AI Safety | Parallel Programming | Convex Optimization | Software Architectures

Anna University *Sept 2020*
Bachelor of Engineering, Electronics and Communication Engineering
Relevant Coursework: Data Structures | Linear Algebra | Digital Signal Processing | Deep Learning | Computer Architecture