Akshay Kolli

8577990549 akshaykolli@hotmail.com www.akshaykolli.net github.com/profLepton

Experience

Siemens Healthineers May 2023 - Sept 2023
Software Engineering Intern *Tarrytown, NY*

- Created data analysis tool with Python to process and analyse data from commercial blood testing machines. This tool helped engineers throughout the team efficiently analyse large amounts of machine data.
- Developed a pipeline for training and deploying a 1DConv AutoEncoder model for real time error detection with $> 99.99\%$ accuracy, trained on a dataset of more than 700,000 blood sample extractions.

Exalabs, University of Massachusetts September 2022 – May 2024 / Present
Research Assistant *Lowell, Massachusetts*

- Designed and implemented state-of-the-art machine learning pipelines, usually involving graph machine learning to learn graph properties & forecast trajectories.
- Implemented a simulation framework for multi-agent system simulations that reduced simulation time by a factor of 1000.

Research

Graph Attention Inference of Network Topology in Multi-Agent Systems Oct 2024
Modeling, Estimation and Control Conference, 2024 *Chicago, IL*

- Found a novel solution to inferring the interaction graph topology in a multi agent system using the attention mechanism.

Network Topology of Multi-Agent Systems Sept 2022 – Sept 2024
Master's Thesis, Sponsored by the US Army Research Labs *Lowell, Massachusetts*

- Developed a Machine learning framework to extract the interaction graphs between agents in an autonomous multi-agent system.

Technical Skills

Languages: Rust, Kotlin, Python, Go, C++, SQL, TypeScript, R
Technologies: React.js, Django, Flask, TensorFlow, PyTorch, Jax, Tauri, Android SDK, Docker, Golang, Java, PySpark, Kubernetes, Google Cloud Platform, MongoDB
Concepts: Natural Language Processing, Transformers, Encryption, , Artificial Intelligence, Machine Learning, Relational Databases, Cloud Computing

Projects

Fast Graph Attention Neural Network | *Python, PyTorch, HuggingFace*

- Created a new graph neural network algorithm. The algorithms allows for efficient batching of neighborhoods and single pass computation.
- Improved a 3.5x reduction in training time compared to a regular graph neural network.

Jaxformer | *Python, PyTorch*

- Implemented a pure jax version of a language model from scratch.
- Reduced training time of GPT-2 equivalent by 16%.

Education

University of Massachusetts Jan 2025 - Present
Doctor of Philosophy (PhD) in Computer Science

University of Massachusetts August 2022 - Dec 2024
Master of Science (MSc) Computer Science *No Degree Earned*

Osmania University August 2018 - June 2022
Bachelor of Engineering (BE) in Mechanical Engineering