Daniel Portnov

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Education

Georgia Institute of Technology — Atlanta, GA (Remote)
Master of Science in Computer Science, Specialization in Machine Learning — *Sept. 2023 – Present*

University of Wisconsin-Madison — Madison, WI
Bachelor of Science in Computer Science, Minor in Mathematics — *Sept. 2018 – May 2021*

Experience

AI/ML Engineer — Feb. 2023 – Aug. 2024
General Motors — *Warren, MI*

- Refined production-grade transformer model for lane detection, optimizing input data and evaluating outputs to enhance autonomous vehicle vision systems
- Developed time series interpolation algorithm with PySpark, standardizing data intervals and increasing analysis efficiency by 80%
- Implemented a tailored data loading system utilizing PyTorch for Delta Tables, which enabled faster data ingestion and reduced loading times by 50%, supporting robust model training without delays
- Reorganized data from parquet files into Databricks Delta Tables to enhance accessibility for model training

Automated Driving Software Engineer — Aug. 2022 – Feb. 2023
General Motors — *Warren, MI*

- Wrote Python code to detect data corruption, preserving critical information and saving $500,000+ in wasted data
- Refactored legacy codebase using clean code practices and modern Python techniques, improving readability
- Worked with teams in the Middle East to ensure that the data annotation tools they were creating met the requirements of the USA data collection team

AV System Safety Engineer — Feb. 2022 – Aug. 2022
General Motors — *Warren, MI*

- Expanded unit test coverage for autonomous vehicle systems from 45% to 95%, enhancing software reliability and reducing critical bugs
- Reduced new hire on-boarding time from 1 week to 1 day by creating a Docker container with a pre-loaded development environment, ensuring a consistent setup across all machines
- Contributed to safety-focused discussions for the Cruise Origin self-driving taxi, ensuring engineering decisions prioritized passenger and pedestrian safety

Embedded Software Engineer — June 2021 – Feb. 2022
General Motors — *Warren, MI*

- Designed a client-server model for vehicle-to-OTA server communication, ensuring secure and efficient software update transfers

Projects

USCIS Chatbot | *Python, Pinecone, Langchain, SQLite, Streamlit, Llama* — Oct 2024

- Developed a responsive chatbot using LangChain, Pinecone, and Llama via Ollama to deliver context-aware answers to user queries on USCIS policies.
- Generated vector embeddings for USCIS manual chunks using LangChain, storing them in Pinecone
- Used a hash of chunked content as a key in Pinecone for efficient retrieval of full pages from an SQLite database
- Designed an interactive UI with Streamlit, enabling users to easily engage with the chatbot

Technical Skills

Languages: Python, Java, JavaScript, SQL, C/C++
AI/ML: LangChain, Llama, LLMs, RAGs, Deep Learning, Reinforcement Learning
Automotive: ADAS, Radar, LiDAR
Cloud & DevOps: Docker, Azure
Developer Tools: Git, Linux, Conda, VS Code, Jira, Confluence, Bitbucket, Agile
Data Management: Databricks, PySpark, Pinecone, SQLite
Libraries: PyTorch, Pandas, NumPy, Matplotlib, Scikit-learn, Streamlit