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 batch data intervals and increasing analysis efficiency by 80%
- Implemented a tailored back-end data loading system utilizing PyTorch for Delta Tables, enabling faster database interactions, reducing loading times by 50%, and 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
- Collaborated cross-functionally with teams in the Middle East to ensure that the data annotation tools met the requirements of the USA data collection team

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

- Increased C++ unit test coverage from 45% to 95% for autonomous vehicle systems, aligning with ASIL and ISO 26262 standards to enhance reliability and reduce high-severity defects
- Introduced Docker containerization to streamline on-boarding, reducing setup time by 85% (from 1 week to 1 day) with a pre-configured development environment, ensuring consistent deployment across all systems

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

- Engineered a Java client-server architecture for secure OTA data transfer, optimizing back-office to vehicle software update protocols
- Implemented SQL-based regular expression parsing to automate error log simplification for failed OTA updates, optimizing log diagnostics and error resolution workflows

Projects

USCIS Chatbot | *Python, Pinecone, Langchain, SQL, 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

Technical Skills

Programming Languages: Python, Java, JavaScript, C/C++
AI & Machine Learning: LangChain, Llama, Large Language Models (LLMs), Retrieval-Augmented Generation (RAG), Deep Learning, Reinforcement Learning
Automotive Systems: ADAS, Radar, LiDAR
Cloud & DevOps: Docker, Azure, CI/CD
Data Engineering & Management: Databricks, Pinecone, Apache Spark, SQL, Airflow, Snowflake
Developer & Collaboration Tools: Git, Linux, Conda, VS Code, Jira, Confluence, Bitbucket, Agile
Data Science Libraries: PyTorch, Pandas, NumPy, Matplotlib, Scikit-learn, Streamlit