

# Daniel Portnov

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## EDUCATION

### Georgia Institute of Technology

*Master of Science in Computer Science, Specialization in Machine Learning*

### University of Wisconsin-Madison

*Bachelor of Science in Computer Science, Minor in Mathematics*

Atlanta, GA (Remote)

*Sept. 2023 – Present*

Madison, WI

*Sept. 2018 – May 2021*

## EXPERIENCE

### AI/ML Engineer

*General Motors*

Feb. 2023 – Aug. 2024

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

*General Motors*

Aug. 2022 – Feb. 2023

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

*General Motors*

Feb. 2022 – Aug. 2022

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

*General Motors*

June 2021 – Feb. 2022

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, 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
- Designed an interactive UI with Streamlit, enabling users to easily engage with the chatbot

## TECHNICAL SKILLS

**Languages:** Python, Java, JavaScript, 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, Pinecone, Spark, SQL, Airflow, Snowflake

**Libraries:** PyTorch, Pandas, NumPy, Matplotlib, Scikit-learn, Streamlit