

# Justin M. Dannemiller

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## EDUCATION

### Carnegie Mellon University (CMU)

Master of Science in Electrical and Computer Engineering – GPA: 3.91/4.00 Pittsburgh, PA  
May 2025  
Selected Coursework: Deep Generative Modeling, Multimodal ML, Introduction to Deep Learning

### Kent State University (KSU)

Bachelor of Science in Computer Science – GPA: 3.96/4.00 Kent, OH  
May 2023  
Selected Coursework: Natural Language Processing, Machine and Deep Learning, Advanced AI

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## SKILLS

**Operating Systems and Cloud Platforms:** Linux/Ubuntu, Windows, GCP, AWS

**Programming Languages:** Python, C++, C, CUDA, SQL

**Frameworks and Libraries:** PyTorch, TensorFlow, Keras, NumPy, Pandas

**Deep Learning Tools:** LangChain, LangGraph, MCP, Google ADK, Google A2A, vLLM, HuggingFace, OpenCV

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## EXPERIENCE

### AI Engineer - Open Access Technology International (OATI)

OATI Genie - Multi-Agent LLM System for California ISO (CAISO) Minneapolis, MN  
May 2025 – Current

- Scaled internship pilot into a production-grade multi-agent system for CAISO, **reducing operator workload** by automating core operational tasks using Google ADK, A2A, GPT-OSS-120B, and MCP.
- Improved LLM response speed by refactoring prompt dispatch and request batching for vLLM, **increasing effective batch sizes and reducing end-to-end latency by 35–40% in production.**
- Developed an automated evaluation and regression testing stack with Google ADK to validate agent routing, tool calls, and LLM responses, **cutting system evaluation cycles from 2 days to 2 hours.**
- Fine-tuned Mistral-7B-Instruct with HuggingFace Transformers and LoRA adapters on prompt-tool-call traces, **yielding a 13% lift in MCP database-tool execution accuracy relative to baseline.**

### AI Engineer Intern – OATI

Generative AI Pilot for Enterprise Knowledge Retrieval Minneapolis, MN  
June 2024 – May 2025

- Spearheaded a company-wide generative AI pilot showcasing potential of LLM-based retrieval and automation, which later became the **foundation of a million-dollar enterprise platform.**
- Engineered a RAG system across three OATI products using Milvus, Mixtral-8x7b, and hybrid embeddings over hundreds of product documents, **cutting manual document search time by ~80%.**
- Integrated MCP tooling into RAG stack to provide natural-language access to live operational data with **87% tool-call accuracy, materially enhancing decision-support and data-retrieval workflows.**
- Showcased system at major energy conferences (DistribuTECH and OATI Energy Conference), driving strategic interest and **securing a partnership with CAISO, a leading North American grid operator.**

## RESEARCH PROJECTS

### Dubai Airport: Multimodal AI Assistant - CMU

Sept. 2024 – Dec. 2024

- Developed a GPT-4o-powered multimodal airport assistant delivering real-time passenger support across flight information, service inquiries, and interactive media recommendations.
- Engineered a dynamic RAG pipeline using LangChain to orchestrate live APIs (trending media, flight and weather updates) with GPT-4o tool calling, **enabling real-time, context-grounded recommendations.**
- Achieved a **95.5% API-selection and execution accuracy**, ensuring reliable, context-aware responses.

### Enhanced LLM Mathematical Reasoning Project - CMU

Jan. 2024 – June 2024

- Constructed a custom dataset of **1M+ arithmetic expressions** with solutions and chain-of-thought steps, enabling fine-tuning experiments to improve arithmetic generalization in pretrained LLMs.
- Finetuned Phi-1.5 and Llama3-8B with LoRA on custom data, **yielding 5% and 2% respective accuracy gains on out-of-domain GSM8K dataset**, demonstrating robust mathematical reasoning transfer.