Trevor Antle

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Education

B.S. Computer Engineering Dec 2025

Purdue University - West Lafayette, IN *GPA: 3.39/4.0*

- **Relevant Coursework:** Data Structures, Microprocessor Systems and Interfacing, Advanced C Programming, Python for Data Science, Object–Oriented Programming, Operating Systems Engineering

Experience

Software Engineering Intern Sep 2024 – Present

Humana – *Corporate Service Technologies* *Remote*

- Developed and implemented a secure file encryption platform using Django, enabling users to upload, encrypt, and manage APCD report files
- Implemented PGP encryption and an automated batch processing system to encrypt and sign large datasets, ensuring file security while reducing manual workload
- Implemented a scalable data processing pipeline to standardize and synchronize state-level field data
- Streamlined search functionalities using efficient algorithms and JSON serialization for optimized data retrieval

Software Engineering Intern May 2024 – Aug 2024

Humana – *Corporate Service Technologies* *Louisville, KY*

- Developed a Django-based compliance validation automation tool, increasing accuracy by 15%
- Researched and identified AI automation opportunities, streamlining corporate processes
- Implemented PDF-to-CSV conversion tool using pandas and PDFPlumber, achieving 85% data extraction accuracy
- Streamlined data validation processes with Regex and NLTK, resulting in a 30% boost in runtime efficiency
- Designed a Django app featuring an OpenAI-powered chatbot for real-time medication information

Software Engineering Intern May 2023 – Aug 2023

Humana – *IT Insurance* *Louisville, KY*

- Developed a front-end for a customer service chat app, reducing handle time by 25%
- Integrated AI solutions and company APIs, saving $500,000 annually
- Authored SQL queries for data extraction and cleaning, improving accuracy and integration efficiency

Projects & Involvement

Vice President & Co-Founder, Embedded Systems @ Purdue Jan 2025 – Present

- Organizing hands-on workshops covering microcontroller programming, and hardware debugging
- Developed and deployed the official club website to showcase projects and resources

Efficient Approximate Nearest Neighbor Search with Orthogonal Residuals Jan 2025 – May 2025

- Built a PyTorch pipeline for orthogonal vector encoding, integrated with FAISS for scalable ANN retrieval
- Optimized search accuracy and achieved **Recall@10 = 0.9581** with sub-10s query time
- Ran ablation studies on PCA, quantization, and clustering to optimize recall-latency and memory trade-offs

Undergraduate Teaching Assistant – Python for Data Science Aug 2024 – Present

- Introduced students to best practices in Python, assisted in debugging code, and provided feedback on assignments

STM32 Pong Matrix Sep 2024 – Dec 2024

- Built real-time pong game using bare-metal C, GPIO, and ultrasonic sensors for position tracking.
- Integrated DMA and SPI to update an OLED display with live scores and countdown logic.

Catapult AI Hackathon – Intelligent Matching System Mar 2024

- Engineered a Flask backend for integrating user inputs, optimizing match accuracy using K-means clustering
- Developed server-side logic for OpenAI API calls, generating conversation starters with a 90% match rating

Technical Skills

Programming Languages: Python, C, C++, SQL, JavaScript, HTML, CSS, MATLAB
Frameworks & Libraries: Django, Flask, pandas, NumPy, PyTorch, Matplotlib
Tools & Technologies: Git, AWS, SQLite, Bash, SystemVerilog, Salesforce, VPython