# Trevor Antle

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## Education

**B.S. Computer Engineering** Aug 2022 – Dec 2025

*Purdue University — West Lafayette, IN* *GPA: 3.45/4.0*

**Relevant Coursework:** Data Structures, Object–Oriented Programming, Artificial Intelligence, Software Engineering, Microprocessor Systems and Interfacing

## Experience

**Software Engineering Intern** – *Humana* May 2025 – Aug 2025

- Optimized Django compliance engine by **70%** using multithreading for large-scale file validation
- Engineered automated **encryption and digital signing workflows** using Python subprocesses, GPG, and shell scripting, reducing manual effort
- Designed and tested a **PGP encryption module** with signature verification and integrity checks to harden enterprise compliance pipelines

**Software Engineering Intern** – *Humana* Sep 2024 – Apr 2025

- Built a scalable **data integration pipeline** with Python and SQL to synchronize state-level datasets, improving consistency and reliability across systems
- Developed a **Django-based secure file system** with automated uploads, indexing, and role-based access controls for compliance workflows

**Software Engineering Intern** – *Humana* May 2024 – Aug 2024

- Developed a **Django compliance automation module** with rule-based validation logic, improving accuracy by **15%** and reducing manual review
- Built a high-performance **PDF-to-CSV pipeline** using Pandas, OCR (PDFPlumber), and Regex to normalize records, reducing validation runtime

**Software Engineering Intern** – *Humana* May 2023 – Aug 2023

- Developed a **responsive chat front-end** with API integration, reducing support handle time by **25%** through improved member context
- Automated support tasks by integrating **AI workflows**, internal APIs, and optimized SQL queries, improving accuracy and saving **$500K annually**

## Projects & Involvement

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

- Co-founded and structured the club, growing membership to **500+ students**
- Led the **admin team** to strengthen internal operations, logistics, and sustainable club growth
- Organized club workshops on microcontroller programming, embedded C, and Git for 50+ members
- Served as a developer on "Gest," an ESP32 gesture-controlled interface using IMU and flex sensors, achieving 2nd place in Purdue's SPARK Challenge
- Designed and launched the club's official website to showcase projects, resources, and upcoming events

**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

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

- Promoted to **Lead UTA** (Aug 2025), managing peer UTAs and coordinating course logistics for 100+ students
- Guided students in Python best practices, debugging techniques, and data science workflows

**STM32 Pong Matrix** Sep 2024 – Dec 2024

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

## Technical Skills

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