# Aidan Cusa

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## EDUCATION

**The Cooper Union for the Advancement of Science and Art** Expected Graduation **May 2026**

- *Joint Bachelor's and Master's of Engineering* in Electrical Engineering
- *Minor* in Computer Science
- Cumulative GPA: 3.77 | Major GPA: 4.00
- Tau Beta Pi (Engineering Honor Society – within the top 15 students of the School of Engineering class)
- Eta Kappa Nu (Electrical Engineering Honor Society – within the top 5 students of the EE class)

**Relevant Coursework**

Data Structures and Algorithms I & II, Software Engineering, Natural Language Processing, Frequentist, Bayesian, and Generative ML, Compilers, Operating Systems, Computer Architecture, Communication Networks, Discrete Mathematics

## TECHNICAL SKILLS

**Programming Languages**: Python, SQL, C, C++, MATLAB, Java, Javascript, React, HTML5, CSS, Verilog, x86-32
**Tools:** Git, Docker, BigQuery, DBeaver, Google Analytics & Looker, AirFlow, Spring Boot, Linux, Microsoft 365 Suite
**Libraries**: Pandas, NumPy, PyTorch, SciKit, XGBoost, NLTK, spaCy

## WORK EXPERIENCE

**National University of Singapore - *Research Intern*** **May - July 2025**

- Conceived middleware that wirelessly converts “go-to-floor” commands from any ROS-enabled robot to physical elevator-button presses, letting robots call, ride, and exit lifts without tapping the controller or building network.
- Modeled a slim 7-story panel in OnShape (2.8k+ iterations), built the drive electronics, and designed the communication protocol, producing a manufacturable design for less than $75.

**High 5 Games - *Data Science Intern*** **Jun. - Aug. 2024**

- Engineered 50+ custom queries using SQL in BigQuery, conducted individual and team investigations, and used Google Looker to visualize insights and aid in data-driven decision-making.
- Resolved six B2B revenue discrepancies totaling $10,000+ in difference.
- Designed and implemented a regression model in Python to detect anomalies in spin bets, safeguarding the company against exploitative behaviors and irregular betting patterns.
- Developed a Google Cloud Function to automate the ingestion and processing of PayPal chargeback events via a webhook and streamed the relevant data into BigQuery to track user data.

**Lab Computer Center - *Student Manager*** **Sep. 2023 - Present**

- Co-manage a team of 15 student workers, creating hourly schedules and assisting with their duties.
- Resolve IT problems and install new software to ensure a productive academic environment for staff and students.

**Monroe Public Schools - *Substitute Teacher*** **Jan. 2023 - Present**

- Instruct mathematics, physics, and programming subjects to classes of 25+ elementary and high school students.

## SELECTED PROJECTS

**C-99 Compiler** (Jan. - May 2025) **-** Built a C99-compliant compiler with Flex/Bison that transforms source code into quad-based IR and emits runnable x86-32 assembly for Linux.

**Caption Verifier (Apr. - Jun. 2025)** - Designed a multimodal caption-verification model that fuses ViT image features with BERT text embeddings, fine-tuned on Flickr30k data to 86.5% accuracy and validated with a custom benchmark.

**Financial Sentiment Analyzer** (Nov. - Dec. 2024) - Fine-tuned a DistilBERT model on financial text to perform sentiment classification, achieving 96.2% accuracy through extensive hyperparameter optimization.

## EXTRACURRICULARS

- Cooper Union International Collegiate Programming Contest (ICPC), Team A Sep. 2024 - Present
- Cooper Union Google Student Developer Club, Member Jan. 2023 - Present
- Institute of Electrical and Electronics Engineers (IEEE), HKN Member Sep. 2022 - Present
- Cooper Badminton Club, Member, Sep. 2022 - Present

**Other Interests**: Brewing Tea, Knitting, Playing Music (Guitar, Drums, Piano), Chess, and Solving Rubik’s Cubes