

Aidan Cusa

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EDUCATION

The Cooper Union for the Advancement of Science and Art

- Joint Bachelor's and Master's of Engineering in Electrical Engineering Expected Graduation **May 2026**
- Minor in Computer Science
- Cumulative GPA: 3.81 | Major GPA: 4.00 | Master's GPA: 4.00
- Full-Tuition Scholarship, Innovator Award
- Tau Beta Pi (Engineering Honor Society – within the top 15 students of the School of Engineering '26 class)
- Eta Kappa Nu (Electrical Engineering Honor Society – within the top 5 students of the EE'26 class)

Relevant Coursework

Deep Learning, Frequentist, Bayesian, and Generative Machine Learning, Natural Language Processing, Experimentation with PyTorch, Ethics of AI, Compilers, Operating Systems, Data Structures and Algorithms I & II, Software Engineering

TECHNICAL SKILLS

Programming Languages: Python, SQL, C, C++, MATLAB, Java, Javascript, React, HTML5, CSS, Verilog, x86-32

Tools: Git, Docker, MLFlow, BigQuery, DBeaver, Tableau, Google Analytics & Looker, Linux, Microsoft 365 Suite

Libraries: JAX, PyTorch, TensorFlow, Pandas, NumPy, SciKit, XGBoost, NLTK, spaCy

WORK EXPERIENCE

National University of Singapore - *Research Intern*

May - July 2025

- Designed 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 LoRa 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.
- 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.

Brooks 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

Sparse Autoencoder Feature Analysis (Nov. 2025) - Trained an L1-regularized, overcomplete sparse autoencoder on frozen MLP latent activations, isolating 49 active features and validating their impact through feature-level interventions.

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.

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 environments.

EXTRACURRICULAR ACTIVITIES

- 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

Additional Interests: Brewing Tea, Knitting, Playing Music (Guitar, Drums, Piano), Chess, and Solving Rubik's Cubes