

Maxwell Morrison

B.S. Candidate in Electrical Engineering and Applied Mathematics

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Undergraduate researcher at the University of Delaware with a background in electrical engineering and applied mathematics. Research interests include signal processing, computational imaging, machine learning for sensing systems, embedded systems, and computational neural information engineering.

Last updated July 2026

EDUCATION

University of Delaware

Expected May 2027

Newark, DE

- B.S. Electrical Engineering, College of Engineering
- B.S. Applied Mathematics, College of Arts and Sciences
- GPA: 3.6

RESEARCH INTERESTS

Signal processing; computational imaging; kernel methods; submodular optimization; machine learning for sensing systems; information-theoretic objectives; embedded perception; computational neural information engineering; applied and computational mathematics.

RESEARCH EXPERIENCE

Undergraduate Researcher

Summer 2026

Computational Neural Information Engineering Laboratory (CNIEL), University of Delaware | Newark, DE

- Conducting undergraduate research under Dr. Austin Brockmeier in the Computational Neural Information Engineering Laboratory.
- Summer project: Maximizing von Neumann Entropy for Submodular Semi-Supervised Data Augmentation.
- Encoding images as DINO feature representations and selecting unlabeled examples to augment labeled training data through a von Neumann entropy objective with a scaled log-probability soft penalty.
- Maintaining research code repository: github.com/maxbmorr/DINO-Kernel-Herding

Undergraduate Researcher

Jan. 2025 - Aug. 2025

Underwater Acoustics Research, University of Delaware | Newark, DE

- Worked with Dr. Mohsen Badiy and a team of undergraduate researchers on an electronic acoustic recorder.
- Developed an embedded sensing system using the ESP-WROOM-32D with custom hardware and firmware.
- Contributed to embedded system development in support of underwater acoustics research.

PRESENTATIONS

Maximizing von Neumann Entropy for Submodular Semi-Supervised Data Augmentation

Summer 2026

Computational Neural Information Engineering Laboratory, University of Delaware

- Presented summer research poster with Zhi Li and Dr. Austin J. Brockmeier.
- Developed a semi-supervised data augmentation approach using DINO image embeddings, von Neumann entropy, and a scaled log-probability soft penalty.

DroneEye: LiDAR- and Machine-Learning-Based Drone Detection System

2026

University of Delaware Research Day

- Presented poster and technical presentation on a drone detection system using computer vision, machine learning, and LiDAR-based depth perception.
- Received the Research Day People's Choice Award for DroneEye.

AWARDS

- 2026 Research Day People's Choice Award Winner for DroneEye, Department of Electrical and Computer Engineering, University of Delaware
- Institute of Electrical and Electronics Engineers Delaware Bay Section Student Activities Award, Department of Electrical and Computer Engineering, University of Delaware
- Eagle Scout, 2021
- Dean's List

TEACHING AND ENGINEERING EXPERIENCE

Supplemental Instructor / Teaching Assistant

Jan. 2025 - Present

University of Delaware | Newark, DE

- Supplemental Instructor for CPEG202, Introduction to Digital Logic, under Dr. Nathan Lazarus and Mr. Thomas Lum.
- Hold weekly student support hours and assist students with course concepts, lab work, and problem solving.
- Support instruction through grading quizzes, exams, and course materials while serving as a primary contact for students.

Lab Assistant

Jan. 2025 - Present

University of Delaware | Newark, DE

- Lab Assistant for ELEG205, Introduction to Analog Circuits, under Dr. Fouad Kiamilev.
- Lead weekly lab sessions and support students in circuit analysis, measurement techniques, and lab procedures.
- Assist with grading lab coursework and help ensure smooth operation of instructional lab activities.

Electrical Engineering Intern

May 2025 - Aug. 2025

Henry Adams | Baltimore, MD

- Worked in Revit and AutoCAD to develop detailed electrical drawings for contractors.
- Performed lighting simulations using AGi-32.
- Contributed to arc flash studies using SKM.

SELECTED PROJECTS

DroneEye

Senior Design, Computer Vision, LiDAR

Computer-vision and machine-learning drone detection system using LiDAR for depth perception and a custom-trained model to detect drones and estimate Cartesian coordinates through a graphical interface. Presented at University of Delaware Research Day.

Diabeasy

UD Hackathon, Python

Encrypted Tkinter application for tracking insulin usage and calculating dosage amounts.

PitchMAX

Hardware, Firmware

Lower-cost pitch calling system inspired by PitchCom, using custom hardware and firmware to communicate called pitches between players.

PyroPlan

UD Hackathon, Web App, Simulation

Web platform for modeling fire spread in level 1 materials server-side, making simulation accessible without local software installation. Repository: github.com/maxbmorr/2026-Hackathon.

Mom Blood Sugar Tracker

Healthcare, Web App

Web platform that lets multiple caregivers submit orders and coordinate blood sugar and insulin-related care.

SELECTED COURSEWORK

Electrical Engineering

- ELEG479, Introduction to Biomedical Imaging - A

Computing / Computational Methods

- ELEG467, Introduction to Computational Methods - A
- MATH426, Computational Mathematics - In Progress

Applied Mathematics

- MATH503, Complex Analysis - In Progress
- MATH508, Advanced Calculus with Nonlinear Dynamics - In Progress

TECHNICAL SKILLS

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|---|-----------------|
| • Signal processing and computational methods | • MATLAB |
| • Machine learning and computer vision | • Git / GitHub |
| • Embedded systems and firmware | • Revit |
| • Digital logic and analog circuits | • AutoCAD |
| • Python | • AGi-32 |
| • Tkinter | • SKM |
| | • ESP-WROOM-32D |

AFFILIATIONS

- IEEE Student Chapter
- IEEE Eta Kappa Nu
- Troop 97 (Scouts BSA)