

JOHN CAHILL

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EDUCATION

University of Delaware, Newark, DE (*Honors College*)

GPA: 3.7

Bachelor of Science - **Major:** Mechanical Engineering **Minor:** Mathematics

May 2026

Master of Science - **Program:** Robotics

May 2027

RELEVANT COURSEWORK

Introduction to Robotics

Control Systems

Honors Thermodynamics

Digital Control

Linear Algebra I, II, & III

Honors Mechanics of Materials

State Estimation

Honors Machine Design

Honors Computer-Aided Design

RELEVANT EXPERIENCE

Paid Researcher - **Human-Oriented Robotics and Control Lab**, Newark, DE

Sept 2024 - Present

- Paid member of a lab developing patents and publishing research on merging machines with the brain.
- Developed and programmed autonomous navigation robot control and operation systems to create a new final project for a Master's-level Digital Control course. Currently programming and fabricating magnetic-based tactile sensors for use in environment interaction with quadruped robots.
- Collaborate directly with robotics hardware and programming, supporting PhD students in research on robot swarming algorithms and behaviors, environment interaction, and autonomous navigation.

Student - **UD Mechanical Engineering Design Projects**, Newark, DE

Aug 2022 - Present

- Turning design concepts into functional, real-world prototypes through specialized engineering projects.
- Developed, simulated, and applied a joint-space trajectory for a KUKA 7-DOF arm using MATLAB, applying forward/inverse kinematics, Jacobian control, null-space redundancy, and obstacle avoidance.
- Designed and validated a vehicle-mounted UAS propulsion test system with CAD, FEA, sensor integration, and data acquisition; enabled repeatable highway-speed thrust and aerodynamic testing.
- Built and programmed an Arduino-based autonomous pill bottle filling system with sensor-driven counting, bottle orientation, and faulty-bottle rejection; achieved a 96% success rate, highest in class.

Intern - **Veolia North America, Inc.**, West Nyack, NY

Jun 2024 - Aug 2024

- Civil engineering intern at a global water infrastructure firm supporting water main installation in NY.
- Collaborated on budget analysis, project design, client relations, and on-site facilitation.
- Designed cost-efficient lead service removal plans using robotics technology to identify service composition, resulting in a proposal to effectuate a 90% reduction of budget spending on excavation.

Intern - **SKAE Power Solutions, LLC**, Sparkill, NY

Aug 2021 - Aug 2023

- 3-time mechanical/electrical engineering intern at a national critical systems and data center firm.
- Designed Method-of-Procedure reports for 44 days of complex high-rise electrical work.
- Designed CAD models for data centers, rooms, and electrical one-lines in NYC subway terminals and skyscrapers. Researched, analyzed, and presented information to clients, securing contracts for 4 NYC properties and implementing an observatory and astronomy center at a local college.

ORGANIZATIONS

Member

Tau Beta Pi Engineering Honor Society

Sept 2023 - Present

Player Leader

University of Delaware D1-AA Rugby

Aug 2023 - Present

Member

University of Delaware Formula SAE Racing Team

Aug 2022 - May 2024

RELEVANT SKILLS

General: Leadership, teamwork, problem solving, mathematics, teaching

Engineering: Robotics, CAD, 3D printing, soldering, sketching, sensors, motor vehicles, project management

Computer: ROS/ROS2, GitHub, C++, Python, Matlab, Simscape (CFD & FEA), AutoCAD, Solidworks, Excel