

Angel Casanova

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EDUCATION

The Johns Hopkins University

Baltimore, MD

Master of Science in Engineering: Mechanical Engineering | Robotics

May 2026

- GPA 3.42; Distinguished Masters Fellow
- Relevant Courses: **Algorithms for Sensor Based Robotics**, Robot Devices Kinematics Dynamics and Control, **AI/ML** for Global Health, **System Dynamics**, **Mechatronics**

University of Delaware, College of Engineering

Newark, DE

Bachelor of Mechanical Engineering

May 2024

- GPA 3.75; Dean's List: Spring 2021 – Spring 2024
- Relevant Courses: **Controls Systems**, **Digital Control Systems**, Machine Design, **Coding with LLMs**, Fluid Mechanics, Aerodynamics, **Intro to Robotics**, Dynamics
- Extracurriculars: NSBE Secretary, Teaching Assistant (Thermodynamics), basketball, videography

EXPERIENCES

Wabtec Corporation

Erie, PA

Battery Packaging Mechanical Engineering Intern

May 2023 – July 2023

- Compared cell stack band sizes on various criteria to **optimize volume efficiency** in battery back for safety purposes
- Tested burst disk gasket pressure for confidence in sealing capability
- Calculated maximum pressure drop across a cooling manifold in a battery pack for new product design
- Sourced pipe/hose fittings, clamps, and seals for a battery pack cooling manifold

Teaching Assistant (TA), University of Delaware

Newark, DE

Thermodynamics TA

August 2022 – December 2023

- Assisted in the development of students' knowledge in the class and helped increase **their overall grade by 10%**
- Led discussion classes and extra review sessions for students to help gain understanding of material
- Balanced this position successfully with 5 classes and 4 projects in the same semester

University of Delaware Residence Life and Housing

Newark, DE

Resident Assistant

May 2022 – May 2024

- **Promoted, planned, and hosted** meetings for residents to keep them updated on events going on around them
- **Supervised** residents by responding to complaints, reports, requests, and emergencies
- Handled administrative work, such as reports, key management, and mail/package sorting
- Managed a building of **60+ residents**

PROJECTS

Senior Design Project – Unattended Laser Therapy Medical Device (Enovis)

Fall 2023

- Collaborated with team members to design proof of concept medical device that automated laser therapy
- **Programmed two motors** to follow grid-like path based using live sensor data from ultrasonic sensor
- Worked closely with industry sponsor to implement design wants and constraints

Breast Cancer Malignancy Detection Machine Learning Algorithm Optimization – Johns Hopkins University

Fall 2024

- Trained a computationally efficient **AI/ML algorithm** that was able to detect breast cancer malignancy with **84% accuracy** on breast cytology slide images
- Wrote Python scripts to preprocess and **manage 1100+ image files** for training, ensuring correct sorting and automating data augmentation
- Conducted **sensitivity analysis** on the trained model to identify failure points across varying levels of image augmentation
- Developed a final robust model that performed **85% better** than the original with defected and augmented images

Trajectory Planning of 7 DoF KUKA Robot

Spring 2024

- Wrote a concise MATLAB program to calculate a specific trajectory under 8 seconds and **within 1mm accuracy**
- Utilized robotics theory including DH, inverse kinematics **algorithms**, and reference geometry
- Successfully stayed within positional and velocity limits of robot

SKILLS

Technical: Python, MATLAB, Python API's, SolidWorks, Linux

Soft: active listener, **fast learner**, **curious**, analytical thinking, time management, resourceful