

Caleb Beswick

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PROFESSIONAL SUMMARY

Mechanical Engineering student at the University of Delaware (GPA: 3.556) with hands-on experience in SolidWorks CAD, 3D printing, rapid prototyping, and Python-based data analysis. Demonstrated ability to apply stress analysis, structural iteration, and design for manufacturability to physical systems, from biomedical fixation hardware to computational dynamics. Brings strong technical foundations and a build-first mentality to product design, R&D, and engineering analysis roles.

EDUCATION

University of Delaware

Bachelor of Science in Mechanical Engineering, Minor in Computer Science. Dean's List, Fall 2024. GPA: 3.556.

Newark, DE

Expected May 2028

EXPERIENCE

3D Printer Technician and Product Assembly Specialist

July 2022 – August 2023

Avast Marine

Rockville, MD

- Diagnosed and repaired hardware and firmware faults across a fleet of 6 3D printers, restoring full uptime for production use.
- Redesigned and iterated CAD models for printed components, reducing material waste and improving output quality.

Lifeguard and Pool Operator

June 2024 – Present

Georgetown Aquatics

Rockville, MD

- Supervised a team of up to 5 lifeguards, enforcing safety protocols to maintain a safe swimming environment.
- Trained new lifeguard hires and led safety drills, strengthening protocol compliance and team readiness.

PROJECTS

Femoral Fracture Fixation Plate

University of Delaware, Group Project

- Led stress analysis of an internal femur fixation plate, solving for cross-sectional dimensions ($w = 0.7$ in, $t = 0.226$ in) to achieve a factor of safety of 2 against bending failure in 316L stainless steel.
- Iterated two SolidWorks prototype generations with curved contact ridges and angled screw holes, reducing plate-to-bone contact and improving lag screw seating during physical testing.

Vehicle Horsepower Estimation from Smartphone Accelerometer Data

MEEG 211: Dynamics, University of Delaware

- Built a Python data pipeline processing variable-rate accelerometer data via bias correction, rolling-window smoothing, and automated pull-window detection to isolate a full-throttle acceleration event.
- Estimated peak horsepower (113.22 hp) via trapezoidal integration and Newton's Second Law, validating within 13% of rated output.

FocusBar: Real-Time Student Focus Tracker <https://github.com/BeswickC/Henhacks2026>

HenHacks 2026, Hackathon Project

- Built a real-time productivity tracker using a webcam and custom-trained YOLO model to classify study sessions as productive, distracted, or neutral, displaying live feedback through a custom desktop widget.
- Architected a multithreaded Python pipeline (OpenCV, Ultralytics YOLO) separating vision inference, state logic, and UI rendering into independent threads, with a scoring engine and session history tab.

ACTIVITIES & LEADERSHIP

Youth Soccer

Youth Soccer Coach

- Coached players' technical skills and teamwork across a full season.

Intramural Athletics, University of Delaware

Athlete

- Competed in intramural soccer, basketball, and volleyball.

CERTIFICATIONS

- Lifeguarding
- Pediatric CPR

SKILLS

CAD & Design: SolidWorks, 3D Modeling, 3D Printing, Rapid Prototyping, DFM

Engineering: Stress Analysis, Structural Iteration, Design for Manufacturability

Programming: Python (NumPy, Pandas, Matplotlib), Excel