

DAMAN YANG

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WORK AND PROJECT EXPERIENCE

Sea Machines Robotics | *Systems and Applications Engineer* | Boston, MA

May 2024 - Present

- Spearheaded design of a next-generation maritime autonomy system, emphasizing ease of fabrication and corrosion resistance; delivered full CAD assembly and drawings per ASME GD&T standards and independently constructed the alpha build.
- Led prototype validation via sea trials, environmental lab testing, and engineering a backwards-compatible simulator interface that converted serial AIS/ARPA targets to NMEA2000, integrated serial GPS, and matched legacy connector pinouts.
- Devised and implemented a turnkey autonomy solution by leveraging skills in electronics, networking, sensor integration, and engine maintenance to convert a simple vessel into a USV within 15 hours; simplified system architecture to reduce user error and lower BOM cost by 9%.
- Directed a cross-functional team as Technical Lead to design and deliver a fully operational USV within 6 months.
- Conducted weight distribution and power draw analyses, created the top-level CAD assembly, installed hardware, supported sea trials, and resolved communication and autonomy issues for a new USV.
- Improved a maritime computer vision system by integrating a gimbal with a custom watertight enclosure and refining camera calibration, reducing reprojection error from ~20 px to <1 px and achieving <10% passive range error.
- Conducted hands-on dockside maintenance, fault diagnosis, and hardware upgrades on 1 test vessel and 6 simulators; created mounting fixtures for installing and integrating GNSS, INS, cameras, and STW sensors.
- Oversaw product BOMs, engineering change orders, wiring diagrams, and work instructions for 4 products, ensuring accurate and up-to-date documentation across all hardware assemblies.

GoPro ROUV (Capstone Project) | *Systems Design/Software Lead* | Boston, MA

Jan. 2023 - Apr. 2023

- Designed and built a remote-controlled underwater drone to capture HD video using Python, socket programming, hardware-timed PWM thruster control, and system daemon.
- Performed FEA analysis on 3D-printed thruster mounts to ensure structural stability as well as buoyancy and velocity analysis.
- Mitigated potential failure modes by programming safety features such as thermal shutdown and leak-detection abort logic.
- Validated prototype performance by designing and executing iterative watertightness, software, and thermal tests; successfully piloted the prototype in the Charles River.

Piaggio Fast Forward | *Manufacturing Engineering Co-op* | Boston, MA

Jul. 2022 - Dec. 2022

- Developed automated tests with Python and Tulip MES data collection API integration to analyze production subassemblies; applied PID controls to reduce signal noise by 80% to analyze process capability and assembly variation ahead of product launch, enabling quick diagnosis of field issues.
- Created another automated test for motor inspection with 91.6% accuracy and 0 false positives/negatives, eliminating destructive inspection and drastically decreasing inspection time.
- Managed reliability testing of robots by creating automated alerts and using video recordings to analyze failure root causes.

Fresenius Medical Care / NxStage | *Systems Engineering Co-op* | Lawrence, MA

Jul. 2021 - Dec. 2021

- Designed experiments and identified flow control variables of interest for a prototype active-control dialysis machine.
- Boosted system performance and reduced key metric error by more than 75% by redesigning the pre-treatment calibration sequence to match a new flow path.

EDUCATION

Northeastern University | *Bachelor of Science in Mechanical Engineering* | Boston, MA

May 2024

SKILLS

Software: Linux, Python, Git, MATLAB, ANSYS, TIA Portal, CANking, networking, serial communication
Design: Solidworks (CSWA), Onshape, shop tools, laser cutting, 3D printing, flux core welding, miter saw
Language: Fluent in Mandarin (native)

INTERESTS

Cycling, cooking, volunteering, ice hockey, rock climbing, banjo, lighting design, marine animals, hot sauce