JOHN BORKOWSKI

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PROFESSIONAL SUMMARY

Mechanical Engineering graduate from Rutgers University (Summa Cum Laude, 3.68 GPA) with hands-on experience in mechanical design, manufacturing support, FEA research, and full-stack product development. Skilled in SolidWorks, Python, and machining; combines shop-floor fabrication with simulation, embedded systems, and software development to build and improve complex engineered systems.

EDUCATION

Rutgers University School of Engineering | New Brunswick, NJ | May 2026
B.S. Mechanical Engineering, *Summa Cum Laude* | GPA: 3.68 / 4.0
Relevant Coursework: Thermodynamics, Computer Science, Fluid Mechanics, Mechanics of Materials, Design and Manufacturing, Heat Transfer, FEA, Dynamics

ENGINEERING EXPERIENCE

Mechanical Engineering Intern | *Viking Yachts* | New Gretna, NJ | Summer 2025

- Created and revised 3D CAD models and 2D engineering drawings in SolidWorks for propulsion, hydraulic, and marine HVAC systems
- Produced manufacturing documentation used directly on the production floor to guide assembly and installation
- Collaborated with engineers and technicians to improve design for manufacturability (DFM) and installation efficiency
- Verified fit, alignment, and routing of mechanical components; assisted with modification and validation to resolve installation conflicts

Research Assistant — AI-Driven FEA Materials Research | *Rutgers Aresty Program* | 2024–2026

- Modeled mechanical components in SolidWorks and analyzed stress/strain response using FEA under varying load conditions
- Developed Python scripts to automate experimental data collection and processing; trained PyTorch neural networks to predict structural behavior
- Presented research findings to faculty and industry reviewers; validated model performance against structured datasets

ENGINEERING PROJECTS

HullSense – Marine Monitoring System | Independent Project | hullsense.io

- Designed and built an end-to-end marine monitoring system spanning embedded firmware, cloud backend, and mobile application
- Developed ESP32 firmware in C++ with a custom BLE protocol for sensor data acquisition and device pairing
- Architected Node.js/Firebase backend with cloud functions; integrated Stripe, Twilio, and Hologram LTE for cellular connectivity
- Built cross-platform Flutter mobile app for real-time monitoring, configuration, and account management

Ribbon Burner Forge & Foundry | Independent Project

- Designed and built a metal foundry capable of exceeding 2000°F for aluminum/copper casting and steel forging
- Fabricated welded steel chamber with refractory insulation; designed and tuned ribbon burner combustion system for fuel-air mixing and thermal efficiency
- Applied thermodynamics, heat transfer, and materials knowledge; performed all machining, welding, and fabrication

TECHNICAL SKILLS

CAD & Design: SolidWorks, Autodesk Inventor, Fusion 360 — engineering drawings, assemblies, dimensioning
Analysis & Programming: Python, MATLAB, numerical analysis, FEA, data processing
Manufacturing & Fabrication: Machining, lathe/mill operation, refractory systems, high-temperature material handling
Engineering Concepts: Design, thermodynamics, heat transfer, combustion, structural analysis, system integration

HONORS & ACTIVITIES

Pi Tau Sigma Mechanical Engineering Honor Society | Aresty Research Scholar | Rutgers Mobile App Development Club