

Mark Rome

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EDUCATION

Purdue University

Bachelor of Science in Mechanical Engineering, Minor in Management

Dean's List Scholar and Semester Honors: All Semesters, Presidential Scholarship

West Lafayette, IN

Aug 2023 – May 2027

GPA: 3.7/4.0

ENGINEERING EXPERIENCE

Acuitive Technologies

Allendale, NJ

Product Development Engineering Intern

June 2026 – Aug 2026

- Designed implants and durable/single-use surgical instruments in **SolidWorks**, developing manufacturable **CAD** models and resin 3D-printed prototypes to meet design requirements throughout the product development lifecycle
- Prototyped fixtures and conducted torsion, bending, and stress testing on bioresorbable implants, using an **ADMET** system to characterize mechanical performance and material behavior across the implant degradation profile
- Performed finite element analysis (**FEA**) on surgical instruments, solid body implants, and eyelets to validate structural integrity and guide material selection; design iterations reduced peak deformation by an estimated 40%, improving component durability and design margin
- Authored and released engineering drawings, protocols, tolerance stack-ups, and testing procedures through QT9, a document control and quality management system, ensuring compliance with design control and full traceability requirements throughout the product lifecycle

The Okonite Company

Paterson, NJ

Mechanical Design Engineering Intern

June 2025 – Aug 2025

- Designed a filtration system for the research facility, reducing particle concentration by 20%, and collaborated with pipe fitters and mechanics on the manufacturing floor to improve system reliability, serviceability, and ease of use
- Developed a winch-assisted cable loading method, applying engineering statics to evaluate loading forces and winch requirements, reducing staffing from 15 workers to 2 operators while minimizing manual lifting and injury risks
- Implemented a motor inventory management system for critical spares into a database for improved accessibility

Device and Instrument Design

Madrid, Spain

Engineering Exchange Student at Universidad Carlos III Madrid

Sep 2025 – Dec 2025

- Constructed a pulse oximeter, integrating LED sensors, signal processing, and mechanical housing components
- Utilized a handshake between **Arduino** and **MATLAB** to process a blood oxygen result with an error of <2%

ASME Prosthetics Team

West Lafayette, IN

Mechanical Design Engineer

Sep 2024 – Jan 2025

- Created a prosthetic hand with 14 degrees of freedom and a supported load of 30N using **NX** and prototyping skills
- Performed **FEA**, guiding design decisions for 0.89 MPa max stress and 0.015mm deformation on each fingertip
- Built a control system using 5 flex sensors + 5 servos, enabling full finger actuation via real-time signal processing

Stevens University Biomedical Engineering Research Lab

Hoboken, NJ

Researcher

Sep 2022 – Sep 2024

- Co-authored published study showing porous microtubular networks increased cell viability from 12% to 63%
- Created 3D-printed vascular channels sustaining ~60% osteoblast viability over 7 days
- Optimized scaffold porosity, increasing glucose diffusion rates from 3.5 mM to 16.6 mM
- Tuned PEC coating layers to control wall thickness (~8 µm per layer) while engineering biodegradable POC formulations with increased mechanical performance at 42 kPa modulus

LEADERSHIP

Delta Sigma Phi

West Lafayette, IN

VP of Academics and Scholarship, Philanthropy and Social Board

Sep 2023 – May 2025

- Spearheaded academic initiatives for a 150+ member fraternity, achieving a 0.2 increase in average GPA over 1 year
- Coordinated fundraising events that raised a total of over \$15,000 in support of American Suicide Prevention

Emmanuel Cancer Foundation

Sep 2021 – Aug 2023

- Led the Junior Board as Vice Chair, and raised over \$30,000 for families dealing with pediatric cancer across New Jersey
- Organized 4 food drives in various supermarkets and 3 holiday fundraising events throughout Bergen county

SKILLS

Technical: Creo, NX, ADMET, SolidWorks, MATLAB, Microsoft Office, Google Workspace, GD&T, FEA, Ansys

Certifications: Certified SolidWorks Associate (CSWA) certification: Validating proficiency in 3D CAD modeling

Languages: English (fluent), Russian (fluent)

Interests: New Product Development, Design Work, Volleyball, Skiing, Hiking