

# Matthew C. Nelson

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## EDUCATION

### Iowa State University

*B.S. Biomedical Engineering & B.S. Mechanical Engineering*

Expected Graduation: May 2027

Ames, IA

- GPA: 3.3 / 4.00
- Minors: Biology, Chemistry
- Study Abroad Japan: Developed technical communication skills working with non-English speakers

## EXPERIENCE

### Gits Manufacturing Co.

Des Moines, IA

*Research & Development Engineering Intern*

May 2025 – Aug. 2025, May 2026 – Aug. 2026

- Contributed to the design, implementation, and maintenance of global engineering shared services, PDM, KPI tracking, and engineering change management workflows across multiple industrial companies and divisions.
- Reverse engineered competitor products to support internal research, benchmarking, and future product development initiatives.
- Designed and implemented a custom torsion spring lifecycle testing apparatus for supplier quality validation.
- Authored new Standard Operating Procedures to close workflow gaps, standardize engineering practices, and improve process consistency.
- Applied DFMEA, 8D, and Six Sigma methodologies to structured engineering problem solving, risk assessment, and continuous improvement.

### Iowa State University

Ames, IA

*Biomedical Engineering Researcher*

Jan. 2026 – Present

- Perform biomechanics research analyzing bone fracture mechanics to inform orthopedic implant design.
- Collaborate with the College of Veterinary Medicine to develop fixation plates and surgical protocols for veterinary surgeons.

*Student Researcher*

Aug. 2023 – 2024

- Tested and developed instructional solutions supporting university-level fluid dynamics courses.
- Partnered with faculty and researchers to enhance laboratory curriculum and experimental workflows.
- Operated heavy machinery within controlled testing environments while maintaining strict safety standards.
- Built foundational chemistry and biology laboratory experience.

### Iowa State Daily

Ames, IA

*Photojournalist*

Aug. 2025 – Present

- Capture major university events for publication while operating in fast-paced environments.
- Collaborate with editorial teams to meet deadlines and deliver high-quality visual media.

## ENGINEERING PROJECTS

### R&D and Design of a Torsion Spring Life Cycle Test Fixture

- **Role:** R&D Mechanical Engineering Intern
- Designed, manufactured, and assembled a torsion spring lifecycle testing apparatus to validate springs used heavy truck valve assemblies.
- Engineered a system capable of simultaneously testing up to five torsion springs at 2 Hz over millions of mechanical cycles.

- Applied mechanical engineering principles and Design for Manufacturing to ensure durability, repeatability, and ease of assembly.
- Designed and programmed in house user friendly companion software for integrated direct and autonomous machine control.

## R&D and Design of a Mechanical Knee Testing Fixture

- **Role:** Biomedical Design Engineer
- Designed and fabricated a mechanical knee testing fixture to replicate human knee motion for lifecycle testing of Class I knee braces and compressive supports.
- Incorporated biomechanical motion constraints to simulate realistic joint loading and movement patterns.
- Created a 3D-printed prototype to assess the designs mechanical feasibility.

## Engineering Shared Services Workflow Development & Implementation

- **Role:** R&D Mechanical Engineering Intern
- Played a principal role in designing, implementing, and maintaining an engineering shared services workflow that standardized engineering processes across multiple industrial companies and global divisions.
- Developed and maintained standardized workflows that enabled collaboration, information exchange.
- Implemented KPI tracking and reporting processes to improve visibility into engineering workload, project status, process performance, and shared-service effectiveness.
- Supported Product Data Management (PDM) practices to improve engineering document control, and accessibility of technical information across organizations.
- Helped establish scalable engineering processes that improved cross-company coordination, and management of globally distributed engineering activities.

## Engineering Change Management & Process Control

- **Role:** R&D Mechanical Engineering Intern
- Played an integral role in maintaining and supporting an engineering change management workflow governing controlled modifications to products, drawings, specifications, and technical documentation.
- Supported engineering changes through review, documentation, approval, implementation, and release.
- Maintained PDM documentation and revision control practices.

## LEADERSHIP & EXPERIENCE

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### Zenith Media Group, LLC

Jan. 2020 – 2023

*Owner*

- Planned and managed project workflows to deliver high-quality media products for diverse clients.
- Translated client requirements into tangible deliverables while maintaining timelines and scope.

### Powerhouse Robotics

Oct. 2022 – Present

*Engineering Mentor (Volunteer)*

- Mentor students alongside engineering professionals to develop technical and problem-solving skills.
- Strengthened leadership abilities through oversight in high-pressure team environments.

## TECHNICAL SKILLS

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**Programming, Generative AI And LLMs:** Java, Python, MATLAB Advanced prompt engineering, AI-assisted software development, technical research, data analysis, documentation, and workflow automation

**CAD/CAM And Manufacturing:** SolidWorks, Autodesk Inventor, PTC Creo, Onshape, Revit, SLA & FDM 3D Printing (Prusa, Cura), CNC machining

**Engineering Methods And Certifications:** DFMEA, Six Sigma, 8D, Certified SolidWorks Associate (CSWA)

## INTERESTS

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Member, Iowa State SolidWorks Club; strong interest in robotics, orthopedic devices, and medical device design. Operate a hobby CNC and manufacturing lab featuring routers, mills, and additive manufacturing equipment.