

SUMMER ROMAN NICKS

Senior Mechanical Engineer | New Product Development | Electromechanical Systems

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PROFESSIONAL SUMMARY

Senior Mechanical Engineer specializing in new product development, electromechanical systems, and bringing complex hardware products from concept through production. Over the past seven years I've combined strong mechanical intuition with hands-on manufacturing experience to develop precision hardware, improve engineering systems, and solve ambiguous design problems through thoughtful engineering, rapid iteration, and close collaboration with cross-functional teams.

TECHNICAL SKILLS

Product Development: New Product Development • Mechanical Architecture • Electromechanical Systems • Product Lifecycle • Rapid Prototyping • Design Validation • Design for Manufacturing (DFM) • Design for Assembly (DFA)

Mechanical Engineering: SolidWorks • GD&T (ASME Y14.5 Certified) • Tolerance Analysis • Structural Design • Thermal Management • Root Cause Analysis • Failure Analysis • Mechanism Design

Manufacturing: CNC Machining • Sheet Metal • Plastic Part Design • 3D Printing • Laser Fabrication • Supplier Development • Overseas Manufacturing Support • Manufacturing Documentation • ISO 9001 • IATF 16949

Cross-Functional: Motion Control • Servo & Stepper Motors • Actuators • Sensor Integration • Mechanical Packaging • PCB Integration • Technical Documentation • Supplier Collaboration • Engineering Leadership

PROFESSIONAL EXPERIENCE

Mechanical Engineer | [Imatest LLC](#) | [Boulder, CO](#) | April 2021 – January 2026

Impact: Helped transform a small hardware group into a scalable engineering organization while leading development of flagship electromechanical products from concept through production. Established engineering standards, supplier workflows, and product development processes that improved manufacturability, reduced costs, and enabled future growth.

- Led development of Imatest's flagship Benchtop Test Stand (BTS), transforming an endoscope-specific concept into a configurable electromechanical product platform supporting over 50 product configurations. Led customer discovery and requirements definition by working directly with medical imaging manufacturers, then owned concept development, CAD, tolerance analysis, supplier sourcing, validation, manufacturing documentation, and production release.
- Architected precision mechanical assemblies integrating servo motion systems, optics, sensors, electrical components, and supplier-manufactured hardware while maintaining alignment accuracy across highly modular configurations.
- Designed and released multiple electromechanical products integrating motors, encoders, sensors, custom PCBs, panel-mounted connectors, cable management, and mechanical packaging for automated optical testing systems.
- Designed a thermally managed high-power LED stray-light test device incorporating an aluminum-core PCB, thermoelectric cooling, heat sink, forced-air cooling, and thermocouple based validation testing. Used analytical calculations and iterative prototyping to optimize thermal performance.
- Performed tolerance stack-up analyses, structural evaluations, vibration testing, and engineering validation using accelerometers, physical testing, and first-principles engineering calculations to improve product reliability.
- Established department-wide CAD standards, engineering documentation, and Bild PDM workflows that improved revision control, product traceability, and engineering scalability.
- Expanded supplier relationships during COVID supply-chain disruptions, negotiated pricing reductions up to 25%, reduced lead times by approximately 50%, and established secondary sourcing strategies that significantly improved production resilience.
- Championed bringing acrylic fabrication in-house through implementation of a laser cutting workflow, reducing part costs by approximately 35% while dramatically accelerating prototype iteration.
- Mentored engineers and technicians, developed engineering standards, assembly procedures, manufacturing documentation, customer guides, and internal training materials to improve knowledge transfer and consistency across the department.
- Recognized for improving engineering systems, documentation, and product development workflows that enabled the hardware team to scale efficiently.

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Manufacturing Engineer | **Specialty Products Company** | **Longmont, CO** | *May 2018 – August 2019*

Impact: Improved manufacturing throughput by designing production fixtures, implementing collaborative robotics, and solving machining and supplier quality challenges in a high-volume automotive manufacturing environment.

- Designed machining fixtures, production tooling, and inspection fixtures supporting automotive and aerospace components with tolerances ranging from $\pm 0.005"$ to approximately $\pm 0.0002"$.
- Led integration of a Universal Robots collaborative robot arm into CNC production, independently learning robotic programming, developing the automation workflow, and successfully deploying the system under an aggressive project schedule.
- Worked closely with machinists, QA, and design engineering to improve manufacturability through GD&T, tolerance analysis, fixture optimization, and Design for Manufacturing principles.
- Supported quality improvement efforts involving overseas casting suppliers by developing manufacturing fixtures, improving downstream machining processes, and helping resolve supplier quality issues affecting production.
- Authored manufacturing setup documentation and standardized work instructions that captured tribal knowledge and improved production consistency and setup time by 50%.

ADDITIONAL EXPERIENCE

Engineering Intern | **Phase IV Engineering** | **Boulder, CO** | *Summer 2015*

- Manufactured, calibrated, tested, and configured more than 40 wireless sensor products and gateway systems.
- Developed calibration procedures, testing methods, and data analysis documentation supporting production and quality assurance.
- Investigated returned product failures and analyzed thermocouple performance to determine product reliability and root causes of failure.
- Gained hands-on experience with RF sensor networks, embedded hardware, testing, and electronics manufacturing.

Machinist | **ITLL Manufacturing Center - CU Boulder** | **Boulder, CO** | *Jan 2015 – Dec 2017*

- Developed extensive manual and CNC machining experience while earning a Mechanical Engineering degree, providing practical manufacturing intuition that continues to influence product design decisions.

Engineering Intern | **Demiurge LLC** | **Denver, CO** | *Fall 2017*

- Supported fabrication and structural design of large mechanical assemblies, strengthening practical understanding of load paths, manufacturability, and real-world fabrication.

Systems Engineer | **Senior Capstone** | **CU Boulder** — **NBA Milwaukee Bucks Sideline Chair** | *August 2016 – May 2017*

- Served as Systems Engineer on a multidisciplinary team developing an ergonomic heated NBA sideline chair integrating mechanical structures, embedded electronics, heating elements, and soft goods. Led system integration across concept development, prototyping, testing, and validation while maintaining compatibility across mechanical, electrical, and industrial design.
- Collaborated directly with the Milwaukee Bucks performance staff and an international engineering team in New Zealand to translate performance requirements into a manufacturable product.
- The project was later refined for professional deployment by industry partners, implemented by the Milwaukee Bucks, and recognized as a finalist for the 2026 Sports Business Awards – Best in Sports Technology.

Security Officer | **HSS** | **Denver, CO** | *August 2011 – April 2018*

- Worked full-time while earning a Mechanical Engineering degree, demonstrating discipline, resilience, and exceptional time management.

EDUCATION & CERTIFICATIONS

- **B.S. Mechanical Engineering** — **University of Colorado Boulder** | 2017
- Colorado EIT, FE Exam | 2018
- ASME Y14.5 GD&T Certification | 2019
- Opto-mechanical Systems Engineering — CPIA | 2023