

SUMMER ROMAN NICKS

MECHANICAL DESIGN ENGINEER | COMPLEX HARDWARE | PRODUCT DEVELOPMENT

US Citizen | French Resident | Relocating to New Zealand | +1 970 314 4625

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NEW ZEALAND VISA PATHWAY: Washington Accord-accredited B.S. Mechanical Engineering; eligible for Straight to Residence Visa with a qualifying offer from an accredited employer.

PROFILE

Mechanical Design Engineer with seven years of experience developing complex R&D and production hardware, turning ambiguous requirements into manufacturable, testable, and supportable products from concept through production. Combines expert SolidWorks capability with hands-on manufacturing judgment across complex electromechanical systems, automation, rapid prototyping, DFM/DFA, and supplier production. Equally comfortable shaping a new concept, debugging a build, working with suppliers, or strengthening the documentation and engineering systems needed to scale. Creative, practical, and relentlessly curious, with a habit of leaving products, processes, and teams more capable than I found them.

QUALIFICATIONS AND MEMBERSHIPS

- **B.S. Mechanical Engineering** | University of Colorado Boulder | 2017
- **Engineer in Training (EIT)** | Colorado Department of Regulatory Agencies | 2018 | EI.0074926
 - Passed NCEES Fundamentals of Engineering examination
- **ASME Y14.5 Geometric Dimensioning and Tolerancing** | 2019
- **Opto-Mechanical Systems Engineering** | CPIA | 2023
- **Member, Engineering New Zealand (MEngNZ)** | Membership no. 2040723 | 2026

TECHNICAL SKILLS

Product Development: • New Product Development (NPD) • Mechanical Architecture • Rapid Prototyping • Design Verification & Validation (V&V)

Mechanical Design: • SolidWorks CAD • Complex Mechanical Systems & Assemblies • Mechanism Design • Structural Design • GD&T (ASME Y14.5 Certified) • Tolerance Analysis • Engineering Drawings • Technical Documentation

Analysis & Testing: • First-Principles Analysis • Test Engineering & Instrumentation • Data Analysis • Root Cause Analysis • Foundational FEA (SolidWorks Simulation) • Python • MATLAB • LabVIEW

Electromechanical Systems: • Motion Control • Motors & Actuators • Sensor Integration • PCB & Controls Integration • Mechanical Packaging • Thermal Management • Optomechanical Systems

Manufacturing: • Design for Manufacturing & Assembly (DFM/DFA) • CNC & Manual Machining • CAD/CAM • Fixtures & Tooling • Production Transfer

CAREER NOTE

Planned International Career Break | Jan 2026 - Present

Travelling through New Zealand, Japan, France, and Germany to experience different cultures and ways of life; now preparing to relocate to New Zealand for a long-term mechanical engineering role.

PROFESSIONAL EXPERIENCE

MECHANICAL ENGINEER

Imatest LLC | Boulder, Colorado, USA | Apr 2021 - Dec 2025

Impact: Led flagship electromechanical products from concept through production while helping scale a small hardware department. Established engineering standards, supplier workflows, and product-development systems that improved manufacturability, reduced cost and lead time, and strengthened production capability.

- **Flagship product platform:** Led development of Imatest's Benchtop Test Stand (BTS), expanding an endoscope-specific concept into a configurable electromechanical platform supporting 52 product and test configurations. Defined requirements with medical-imaging manufacturers, then owned mechanical architecture, SolidWorks CAD, tolerance analysis, supplier sourcing, validation, manufacturing documentation, and production release.
- **Integrated electromechanical systems:** Architected and released precision assemblies integrating servo and stepper motors, encoders, actuators, lifting columns, sensors, custom PCBs, controls, connectors, cable management, optics, and supplier-manufactured hardware. Balanced off-the-shelf and custom components; used accelerometers and physical testing to diagnose vibration and supplier-quality failures and redesign the motorised gantry.
- **Thermal design and validation:** Developed and launched an over-driven LED stray-light source, integrating an aluminium-core PCB, thermoelectric cooling, heat sink, forced air, sensors, electronics, and mechanical packaging. Validated thermal performance through first-principles calculations, thermocouple instrumentation, and iterative prototyping.
- **Supply chain and cost:** Qualified an alternate aluminium-extrusion supplier during severe disruption, cutting lead time by approximately 50% and pricing by up to 25%. Championed in-house laser cutting, reducing acrylic-part cost by approximately 35% while accelerating prototype iteration speed.
- **Engineering systems & production transfer:** Led BILD PDM implementation, restructuring approximately 50 GB of CAD data and establishing naming, classification, release, and training standards. Supported Odoo ERP administration across CAD, BOMs, purchasing, and assembly. Created engineering drawings, BOMs, supplier packages, procedures, guides, and troubleshooting materials. Hired and trained technicians, enabling repeatable production to move out of engineering.

INDEPENDENT MECHANICAL DESIGN ENGINEERING

Queer Engineering LLC | Denver, Colorado, USA | Sep 2019 - Mar 2021

Established Queer Engineering LLC and prepared for consulting work before COVID halted the launch. Continued professional development and an active engineering search.

MANUFACTURING ENGINEER

Specialty Products Company | Longmont, Colorado, USA | May 2018 - Aug 2019

Impact: Bridged design engineering and the shop floor within ISO 9001 and IATF 16949 standards for automotive and aerospace manufacturing, delivering fixtures, automation, and standardised systems that reduced setup time, improved quality, and preserved production knowledge.

- **Fixture and tooling design:** Designed machining fixtures, jigs, production tooling, and inspection fixtures for cast and machined components with tolerances as small as ± 0.0005 inch. Machinists and QA staff increasingly came directly to me when offsets could not solve the root problem.
- **Automation:** Designed, programmed, and led the integration of a complete robotic CNC automation system using a 6-axis Universal Robots collaborative robot, owning end-to-end mechanical and controls integration, I/O, motion planning, singularity avoidance, functional testing, and production implementation.

- **Standardised work:** Built a controlled Excel tool catalogue and standardised setup system around machinists' actual workflow, reducing setup time by approximately 50%, improving consistency, and preserving critical production knowledge.
- **Cross-functional quality:** Worked with machinists, QA, design engineering, and overseas casting suppliers to resolve manufacturability and supplier-quality issues through GD&T, tolerance analysis, fixture optimisation, and downstream process improvements.

MACHINIST | ITLL Manufacturing Center, University of Colorado Boulder | Jan 2015 - Dec 2017

- Machined student and research prototypes using manual and CNC equipment; trained students and faculty; and advised on drawings, materials, sourcing, CAD/CAM, prototyping, and manufacturability. Built the practical shop judgment that continues to inform design decisions.

ENGINEERING INTERN | Demiurge LLC | Denver, Colorado, USA | Fall 2017

- Translated Rhino CAD models into manufacturable components and supported fabrication and structural design of large sculptures and mechanical assemblies, building practical understanding of structural load paths, fabrication, shipping, and installation constraints.

SYSTEMS ENGINEER | Milwaukee Bucks Sideline Chair Capstone | Aug 2016 - May 2017

- Led system integration for a multidisciplinary team developing an ergonomic heated NBA sideline chair across mechanical structures, embedded electronics, heating elements, adjustability, and soft goods; contributed through requirements, concepts, prototyping, testing, and validation.
- Worked directly with Milwaukee Bucks performance staff and a New Zealand engineering team from the University of Canterbury to translate athlete and client needs into a manufacturable system.
- **Product legacy:** The capstone project's early engineering work was subsequently advanced by university and industry teams, manufactured by Figueras, and deployed by the Milwaukee Bucks at Fiserv Forum. The resulting Bucks – CU Boulder collaboration was named a 2026 Sports Business Awards Tech finalist for Best Technology Collaboration.

ENGINEERING INTERN | Phase IV Engineering | Boulder, Colorado, USA | Summer 2015

- Manufactured, calibrated, tested, and configured more than 40 wireless sensor products and gateways; developed calibration procedures, investigated returned-product failures, and documented test and data-analysis methods.
- Modelled test and validation data for a thermocouple sensor intended for negative-temperature measurements, identified a semiconductor response that matched the experimental data, and sourced the component for product integration.

INTERESTS

Outside of engineering, I'm happiest exploring outdoors, learning a new physical skill, or building something useful. I'm currently learning to surf and sail. I also enjoy hiking, rock climbing, acrobatic yoga, snowboarding, motorcycling, travel, photography, and making practical things that improve everyday life.

REFERENCES

Referees available on request.