Kelson M. Sutherland

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Employment

Redbud Labs | Senior Design Engineer | July 2021 - Present
Lead design engineer at Redbud Labs for the development of a microfluidics based nucleic acid extraction platform, Redbud NA1. I designed, built, and tested four version of the device, increasing functionality and reliability with each iteration. The final version is commercially available now.

Key responsibilities included: mechanical design of the NA1 instrument, testing and validation of the instrument components, providing professional guidance and formal structures to the engineering group, hiring and managing interns and junior engineers, securing and maintaining supplier relationships, designing manufacturing equipment and tooling for the project and inventing cutting edge technology for future product development.

Schmalz Inc. | Mechanical Design Engineer | January 2020 - July 2021
Designed more than 20 custom vacuum gripping systems for automated material handling applications ranging from one inch circle tiles to tesla batteries.

Invented a novel valve for high cycle rate package sorting which became the first patent applied for by Schmalz inc., USA. This patent was approved in 2024, US20220379495A.

Key responsibilities included: mechanical design, documentation, automating design workflow for efficiency, mentoring junior engineers.

Electroimpact | Mechanical/Controls Engineer | June 2014 - September 2019
Led a team of 6 engineers to design, test, and deliver a new generation of fiber placement end effector with a smaller form factor, specialized heating equipment, and increased process reliability.

Designed material storage and accurate feed system for Electroimpact's Scalable Composite Robotic Additive Manufacturing (SCRAM) system, a novel, 6-axis robotic, large format, continuous-fiber thermoplastic 3D printing system.

Worked directly with customers to design experiments using robotic systems with integrated measurement equipment. Wrote CNC macros for automatic tool calibration and operation and generated CNC programs for carbon fiber layups of aircraft parts.

Key responsibilities included: mechanical design of aircraft tooling and fiber placement end-effectors, assembly, testing, and on-site installation of equipment, designing material testing studies for customers, programming and operation of robotic fiber placement systems.

Los Alamos National Laboratory W-16 | Engineering Intern | May 2011 - January 2014
Worked with an interdisciplinary team of scientist and engineers focusing on weapons surety programs. Built and tested research equipment using CAD, 3D printing, and other tools of the trade. Programmed a custom HMI for a tensile testing machine.
Received "Spot Award" for working beyond expectations.

Technical Skills

Product development & prototyping | Microfluidic Technology | End-to-End Product engineering | Design for Manufacturing (DFM) & Assembly (DFA) | Geometric dimensioning & Tolerancing | 3D CAD Design (Onshape, SolidWorks) | Product Lifecycle management

Education

New Mexico Institute of Mining and Technology | Socorro, NM
Bachelor of Science in Mechanical Engineering, with honors
Passed the Fundamentals of Engineering exam 2013 (ID: 14-667-52)
Capstone Project: 2012-2014 NMT SAE Baja Team, (team lead for 2013-2014)
Honor roll student and recipient of NMT copper scholarship for 2010-2014

Personal Interests

Fine Woodworking | Biblical Studies | Philosophy | Vehicle restoration | Rally Racing | Hiking | Camping | Fishing | Guitar | Live Audio Production