

Samuel Thomas Bucior

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Summary

I am a Mechanical Engineer with 7 years of professional experience in mechanical engineering, especially in hands-on research and development, electromechanical design, automation, and additive manufacturing (AM). My noncommercial design portfolio is available at <https://www.sam.buciorweb.com>.

Work Experience

Mechanical Engineer, Bettis Atomic Power Laboratory (NNL/FMP/BMPC), West Mifflin PA 2016-Present

- Designed several different multiple-axis motion and measurement systems with custom touch and camera probes, capable of operating in extreme conditions and with an accuracy on the order of ± 0.001 inch.
- Programmed machine vision scripts for above camera probe to automate calibration and measurements.
- Designed fixturing equipment for high load machining and for high precision metrology and optics.
- Designed lifting and handling equipment for unconventional geometries and high value lifts.
- Redesigned an automated welding machine to replace several single-purpose welding machine designs with a single universal design.
- Developed functional requirements, CAD models, drawings, structural analyses, tolerance analyses, and procedures for the above equipment. Procured, assembled, and tested novel designs.
- Lead a team for testing novel fixturing equipment.
- Trained 80+ engineers on AM, including department presentations on metal AM and one-on-one training as 3D printer lead for multiple labs.
- Coordinated and promoted submissions within my department for an additive manufacturing competition, resulting in the highest number of submissions of any department and an above-average finalist rate.
- Provided mechanical engineering guidance, 3D printing training, and networking contacts to cross-disciplinary projects through Sharkworks (an innovation committee).
- Helped onboard 10+ new engineers through group training and individual mentoring.
- Experienced with purchasing. Requisitioned \$1+ million in larger orders, and placed 200+ smaller orders via purchasing card, to support a mix of my own projects and projects in other departments.

Research Associate (Mechanical Engineering), Human Engineering Research Laboratories 2015-2016

- Designed, manufactured, and tested load sensors and developed filtering software for an under-bed body weight scale and activity monitor.
- Ideated and prototyped a novel load cell (Patent US 20210128019 A1).
- Designed, built, and tested sensors, enclosures, and cables for wheelchair research and data collection.

Education

B.S. in Mechanical Engineering, University of Pittsburgh, Pittsburgh PA GPA: 3.90 2015

Skills

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| • CAD modeling (Solidworks, Creo, Inventor, Fusion 360, FreeCAD) | • Project management |
| • FEA (Ansys, ABAQUS) | • Circuit design and prototyping |
| • GD&T (ASME Y14.5) | • Microcontroller programming with Arduino/C |
| • Design For Manufacturability (DFM) | • Machine vision with MATLAB, Matrox, Image Pro |
| • Manufacturing experience including machining, welding, AM, NDE, soldering | • Other programming experience in C++, Java, Python |
| | • Web experience in HTML, CSS, Javascript, SQL |
| | • Presentation to large groups and senior management |
| | • Spanish-speaking, professional working proficiency |