Jeffrey Costello MS Mechanical Engineering | Highly Interdisciplinary, Perseverant

Portfolio: jdcostllo.github.io   jdcostllo@gmail.com   Linkedin   Somerville, MA

Education

MS Mechanical Engineering 2022 - September 2024
Massachusetts Institute of Technology (MIT) Cambridge MA

BS Mechanical Engineering 2013 - May 2017
Boston University Boston, MA

Professional Experience, 8 Years

Irradiant Technologies

Area Head (Manager), Feb 2025 - Present
Organize and conduct regular area meetings which focus on internal initiatives, cross-collaboration between subteams, and aggregation of intellectual property.
- Manage six area members.
- Conduct twice-yearly performance reviews.
- Provide weekly updates to senior leadership.
- Generate and aggregate documentation, including SOPs.

Senior Mechanical Engineer, Oct 2024 - Present
Develop fixtures, mechanical solutions, and engineering analysis for in-house lithography machines. Develop novel solutions for the Materials and Optics Areas.
- Implemented a scheme for Functional Requirements at Irradiant.
- Developed custom manual and automatic kinematic adjustment mechanisms which enabled lithography tilt compensation in two axes.
- Managed intern mechanical and nanotechnology engineers.

MIT Global Engineering and Research (GEAR) Center

Research Assistant (Masters Student) Sep 2022 - Sep 2024
Staff Engineer Oct 2021 - Sept 2022 and Jan 2018 - Sept 2019
Develop new parametric modeling strategies for the design of low-cost, water-efficient, solar-powered, time-variant electrodialysis reversal desalination (TEDR) systems. Optimize with Genetic Algorithm. Validate against data from field pilots. Develop research hardware and software including field pilots, test stands, and experimental test apparatuses. Collaborate with international partners. Conduct in-field testing.

BU Engineering Product Innovation Center

Lab Supervisor / Manufacturing Instructor Sep 2019 - Oct 2021
Role: Oversee daily operations of a state-of-the-art, 15,000 ft^2 machine shop with throughput greater than 1000 students per semester. Develop and manage laboratory exercises in the "Automated Design and Manufacturing Laboratory."

Chant Engineering Company, Inc

Mechanical Engineer Jun 2017 - Dec 2017
Role: Project management, engineering math, mechanical design, drafting, and ISO 9001 documentation for multiple concurrent engineering projects. Project conception through fabrication and final delivery to the customer.

Objective

I am seeking to apply my interdisciplinary skill set and management experience to challenging, system-level problems within impact-driven teams. I thrive at the intersection of hardware, software, and electronics, and I have taught and led engineering teams in delivering complex electromechanical systems.

Skills

Programming, Automation
Python, MATLAB, Linux, Ladder (PLC), HTML/CSS/Javascript, RSLogix, Universal Robots, Teledyne-Dalsa Vision Systems

System Integration, Electronics
CAN, MQTT, RS232/RS485 Serial, Modbus, Relay Logic, Power Electronics

CAD/CAE/CAM
Solidworks, Onshape, PTC Creo, Fusion, Solidworks FEA, GibbsCAM, HSM Express

Manufacturing
Wire EDM, Manual/CNC Mill and Lathe, FDM and SLA 3D Printers, Laser Cutter, Waterjet

Project Management, Quality Assurance
ISO 9001, Functional Requirements, Technical Documentation, Teaching

Notable Coursework (MS 2024)

MIT 6.2222 Power Electronics Laboratory (Fall 2023)
Custom "Camera-Slide" final project incorporated scratch-designed circuitry with a switched capacitor power supply, boost converter, custom stepper motor driver, and Infineon Programmable System-on-Chip.

MIT 2.720 Elements of Machine Design (Spring 2023)
Mathematical modeling "guru." Used homogeneous transformation matrices and principles of precision machine design to inform all design decisions for a precise, accurate desktop lathe. Team competition winners.