Jeffrey Costello Mechanical Engineer, SM | Innovative, Detailed, Tactful

Seeking full-time roles following the completion of my Master's degree in August 2024.

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

Professional Experience

MIT Global Engineering and Research (GEAR) Center

Research Assistant / Graduate Student Sept 2022 - Present

Conduct novel research on the the design and implementation of low-cost, water-efficient, renewable-powered, time-variant electrodialysis reversal desalination.

- Reduced year-long simulations from 3 hours to 100 ms for exploring the broader design space of time-variant electrodialysis desalination.
- Proposed new optimization strategies for the design of desalination systems.

Research Technician Oct 2021 - Sept 2022 and Jan 2018 - Sept 2019

Support all aspects of research for Masters and PhD level students including the design and implementation of field pilots, computer programming, fabrication, collaboration with international partners, and international travel.

- Designed and fabricated a fully-automated, PLC-based test apparatus for collecting data from a novel reverse-osmosis desalination system.
- Deploy critical hydraulic and electrical subsystems in four desalination field pilots, including international deployments.

BU Engineering Product Innovation Center

Laboratory Supervisor / Technical Instructor Sept 2019 - Oct 2021

Oversee daily operations of a state-of-the-art, 15,000 ft^2 machine shop whose throughput was >1000 students per semester. Develop and manage laboratory exercises in the "Automated Design and Manufacturing Laboratory"

- Instructed 28 students per semester on principles of automated manufacturing including CNC, collaborative robotics, computer vision, and PLCs.
- Scratch-built new manufacturing execution software for the coordination of multiple industrial automation systems. The Linux-based software is still used as a teaching aid for students.
- Managed two computer engineering students who were later dedicated to project development.

Chant Engineering Company, Inc

Mechanical Engineer Jun 2017 - Dec 2017

Work multiple concurrent engineering projects and fulfill all project management, engineering math, mechanical design, and drafting. Responsibility began at project conception and lasted through fabrication and final delivery to the customer.

- Design and development of two 15,000 psi hydrostatic test chambers

Education

Master of Science Mechanical Engineering 2022 - August 2024

Massachusetts Institute of Technology (MIT) Cambridge MA

Bachelor of Science Mechanical Engineering 2013 - May 2017

Boston University Boston, MA

Objective

I am a mechanical engineer seeking to apply my arsenal of interdisciplinary skills to challenging system-level problems with impact focused teams. I thrive on the integration of hardware, software, and electronics to deliver real products that align with corporate goals and end-users wants and needs.

Skills

CAD/CAM

Solidworks, Onshape, PTC Creo, GibbsCAM, HSM Express

Programming and Automation

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

System Integration / Electronics

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

Manufacturing

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

Computing

MS Office, Google Workspace, Overleaf

Notable Coursework

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.