Jeffrey Costello

Mechanical engineer with extensive, hands-on, in-field experience designing, fabricating, and validating electromechanical systems, especially systems related to desalination and drip-irrigation.

Contact

jdcostllo@gmail.com

(215) 410 7669

Cambridge, MA

LinkedIn
linkedin.com/in/jeffrey-costello-581a00109

Portfolio
jdcostllo.github.io

Education

MS Mechanical Engineering
Massachusetts Institute of Technology
2022 - August 2024, Anticipated

BS Mechanical Engineering
Boston University, 2013 - May 2017

Skills

Computer-Aided Design
Solidworks, Onshape, PTC Creo

Computer-Aided Manufacturing
GibbsCAM, HSM Express

Programming
Python, Linux (Ubuntu, Raspian), Ladder, Raspberry Pi, HTML/CSS/Javascript, SQL

Industrial Automation
Rockwell RSLogix 5000, Universal Robots, Teledyne-Dalsa Vision Systems

Manufacturing
Wire EDM, 3-Axis CNC Milling, 2-Axis CNC Turning, Manual Turning, Manual Milling, FDM and SLA 3D Printing

Computing
MS Office, Google Workspace, Overleaf

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

Interests

Home Automation, Network Infrastructure, Raspberry Pi, IoT, 3D Printing

Professional Experience

MIT Global Engineering and Research (GEAR) Lab - www.gear.mit.edu
Research Assistant (Graduate Student), September 2022 - Present
Technical Associate II, October 2021 - September 2022
Research Specialist, January 2018 - September 2019
- ➔ Conducted research on a novel energy-recovery device for small-scale, decentralized, reverse-osmosis desalination systems
- ➔ Successfully debugged and commissioned an electrodialysis (ED) desalination for the Gaza Strip sponsored by UNICEF and USAID. All work was performed abroad in Israel
- ➔ Designed and deployed critical electrical, hydraulic, and software subsystems in a field pilot to study novel power allocation for off-grid, solar-powered, ED desalination systems
- ➔ Created a detailed 3D design for the hydraulics and steel frame for a prototype, commercial, village-scale ED desalination system successfully deployed in India
- ➔ Contributed to the design, manufacture, and experimental analysis of novel prototypes for inline drip-irrigation emitters
- ➔ Contributed to the planning and execution of field trials in Jordan, Morocco, and New Mexico for both desalination and drip-irrigation
- ➔ Delivered a 25-minute presentation at the the Brackish Groundwater National Desalination Research Facility in New Mexico on the design and implementation of novel desalination systems including comparisons to existing ED and Reverse-Osmosis technology

Boston University Engineering Product Innovation Center (EPIC) - www.bu.edu/epic, Laboratory Supervisor, September 2019 - October 2021
- ➔ Wrote and conducted nine laboratory exercises for the course "ME345: Automation and Manufacturing Methods" covering collaborative robotics, computer vision, programmable logic controllers, CNC manufacturing, and system integration. Instructed 28 students per semester.
- ➔ Designed, developed, managed, and documented a full-stack web-application for the integration and automation of all autonomous systems in the Automated Design and Manufacturing Laboratory allowing students to program, operate, and collect data from a fully-autonomous manufacturing cell
- ➔ Instructed, trained, and supervised students on the operation of manual and CNC manufacturing equipment including milling machines, lathes, wire EDM, laser cutters, basic power tools, and basic hand tools. Over 1000 students per semester used the EPIC facility for coursework, clubs, research, and personal projects

Chant Engineering Company, Inc. - www.chantengineering.com
Mechanical Engineer, June 2017 - December 2017
- ➔ Designed test equipment for the validation and certification of high-pressure fracking equipment
- ➔ Project management, engineering math, mechanical design, and drafting for two 22'W X 18'D X 10.5'H hydrostatic test chambers