

# Matthew Pugsley

[www.mattpugsley.net](http://www.mattpugsley.net) | [matt@pugsley.net](mailto:matt@pugsley.net) | [linkedin.com/in/matt-pugsley](https://linkedin.com/in/matt-pugsley)

## Work Experience

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### R&D Hardware Design Engineer, Hewlett-Packard (HP Inc.)

July 2023 - August 2025

- Invented a novel ink pressure sensor architecture and led manufacturing R&D, fabricating 300 prototype units and building a pneumatic fixture for performance testing, achieving \$500K in annual savings over previous designs
- Led development of a firmware algorithm that individually optimizes printer settings, delivering ~\$4M/year savings
- Scoped deliverables and timelines, designed environmental tests, analyzed user data, modeled algorithm impacts, and collaborated with engineering teams to guide firmware and cloud implementation
- Led 3 ink-tank prototype builds, overseeing tool design, optimization, and scheduling to deliver 250 samples on time

### Mechanical Design Engineer, Formlabs

January 2022 - August 2022

- Designed and optimized compliant silicone valve mechanisms to control the flow of high-viscosity fluids
- Created engineering test procedures for validating chemical compatibility, fatigue life, and shipping durability of plastic components expected to have constant contact to corrosive polymer resins
- Built automated test equipment using servos, motors, pneumatics, and scales to standardize and speed up functional and life testing processes of fluid dispensers
- Prototyped designs for components of the Form 4 SLA 3D printer including the resin tank, build plate, and wiper

### Electromechanical Test Engineer, Honda R&D Americas

August 2019 - December 2019

- Designed a test fixture with a motor, transducer, and DC load to benchmark alternators in environmental chambers
- Conducted thermal tests on battery cooling systems, providing critical data to Honda's design and sourcing teams
- Ensured that the electrical performance of vehicle systems, including lift gate and keyless start, met quality standards

### Robotics Engineer, Honda Engineering North America

January 2019 - April 2019

- Owned programming and validation for 180 robotic welds used in mass production of the 2021 Acura MDX
- Documented efficient cable simulation techniques to reduce overtime required to deploy new robotic weld paths
- Analyzed proposed vehicle design changes to assess cycle time and retooling impacts, communicating about findings with design and engineering teams in the U.S. and Japan

## Technical Skills

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**CAD:** Onshape, CATIA V5, SolidWorks, Creo Parametric (Pro-Engineer), Creo Elements, Fusion 360, Autodesk Inventor

**Mechatronics:** Sensor/Motor/Electronics Selection, SLAM, Computer Vision (OpenCV), Python, C++, LabVIEW

**Modeling and Analysis:** JMP, MATLAB, Excel, ANSYS Fluent, Abaqus FEA, Siemens Tecnomatix, Kinematic Simulations

**Manufacturing:** 3D Printing, Injection Molding, Metal Fabrication, Cycle Time Analysis, Robotic Assembly Lines

## Education

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### M.S. Engineering Management, Purdue University

May 2023

**Coursework:** Product Design, Autonomous Systems, Robotics, Operations Management, Business Strategy

**GPA:** 3.9/4.0

### B.S. Mechanical Engineering, Purdue University

May 2021

Director of Outreach, American Society of Mechanical Engineers - Purdue Chapter