

# Luke Plummer

High-energy consultant, ready to solve your hardware problems.

Bolton, VT

(802) 858-6094

lukeplummer@gmail.com

## EXPERIENCE

### Mechanical Engineering Consultant, Bolton VT

August 2023 - Present

- As an expert in end-to-end product development, I help companies solve mechanical design problems.
- Have designed components and systems for high energy-density lighting, wireless charging, marine, and optical metrology.
- Some of my responsibilities have been: early prototype design, DFM/DFA, sensor integration, NPI with suppliers, structural and thermal analysis, and CAD best practices and data management.
- I work under my own business [Outdoor.engineer](#), or as a member of [Informal.cc](#)

### Formlabs, Somerville MA

APRIL 2015 - JUNE 2023

#### R&D Engineer, 2020 - 2023

- Invented, prototyped and evaluated options for next-gen products, SLA and SLS:
  - powder handling mechanisms + sensors to improve cost and compatibility
  - Ground-up printer design for thermal performance
  - Film-based tank material and structure options for SLA “peel” process
- Built detailed cost and feasibility comparison of architecture options, for SLS printer and material handling support equipment, used to decide product direction by executive and product departments

#### Lead Mechanical Engineer, Fuse1, 2015-2020

- Led team of mechanical engineers from early prototyping to shipping 1000s of printers to happy customers, now a major revenue stream for Formlabs
- Designed mechanical architecture and many components of the Fuse1 Selective Laser Sintering printer, including:
  - “Self-regulating” powder handling and feed system
  - “Removable build-chamber” including thermal control scheme, high-temperature powder seals, linear motion system
- Managed 100’s of parts and changes, with supply chain team and CM.

#### Personal Robots Group, MIT Media Lab, Cambridge MA — *Mechatronics Engineer*

APRIL 2014 - APRIL 2015

- Mechanical engineering and DFM of “TEGA”, interactive robot research platform. Built quantity 5 alpha prototypes for research use.

#### Mechanical Engineering Contractor, Cambridge MA

MONTH 2013 - APRIL 2016

- Under-actuated hand-like gripper for Vishwa Robotics
- Enclosure for Atlas5D interactive electronics product
- Motorized actuation system for 8 ft. tall glass sculpture with Wayne Strattman, glass artist

## Bicycle Related Projects

Independent and at MIT, many years

- Designed and welded frames to test experimental geometry (Custom gravel tandem, 36'er MTB)
- Fabricated sliding bicycle rack for compact storage of my excessive bike collection
- Through MIT D-Lab, designed improvements for pedal-rickshaw production, traveled to rural India factory to help implement.

## EDUCATION

**Massachusetts Institute of Technology, Cambridge MA** — *Bachelor of Science, Mechanical Engineering*

2010 - 2014

Robotics, Thermal Fluids, Software Development, Development of Mechanical Products, Design and Analysis of Control Systems.

## SKILLS

Mechanical engineering *of* manufacturing processes, machines, and products.

Design *for* many manufacturing methods such as sheet metal, machining, die cast, extrusion, injection mold, compression mold, vacuum form, SLS, SLA, Laser cut, die cut, welded assemblies, and more!

Rapid prototyping, high-fidelity prototyping

CAD and PLM (Solidworks, Onshape, top-down design practices, Propel, part data management)

FEA (Solidworks, Comsol)

Python scripting and data processing

Prototype-level electronics development (Arduino, Phidgets, sensor integration)

## PATENTS

**US Patent 11685118-B2** TECHNIQUES FOR POWDER DELIVERY IN ADDITIVE FABRICATION ...

**US Patent US20180319081A1**

REMOVABLE BUILD MODULES FOR ADDITIVE FABRICATION

**US Patent US11745424B2** TECHNIQUES FOR THERMAL MANAGEMENT IN ADDITIVE FABRICATION AND RELATED SYSTEMS AND METHODS