Isabelle Dolan

Somerville, Massachusetts | LinkedIn | 1 (775) 900-7673 | isabelle.dolan24@gmail.com| Portfolio

Expertise in modelling and controlling multiphysics of stereolithography (SLA) 3D printing process, problem-solving, and technical communication. Currently contributing to Formlabs' 3D printer R&D, collaborating with a diverse team of engineers and scientists, and developing tools for performance analysis. Seeking a role at the intersection of physics and engineering, with an interest in nuclear and particle physics.

WORK EXPERIENCE

Print Process Engineer **May 2023 – Present**
Formlabs *Somerville, Massachusetts*

- In-depth investigations resulting in solutions for print artifacts such as horizontal banding and X-Y pixel anti-aliasing.
- Created prints and jigs to validate prototype printer build platform surface finish and print plane deflection , identifying product flaws that could hinder part adherence to the build platform.
- Developed analysis and visualization tools for internal engineering data using Python, BigQuery, and Grafana. Tools used by multiple teams of engineers/scientists to drive development.

Systems Integration Engineer **Oct 2022 – May 2023**
Formlabs *Durham, North Carolina*

- Contributed the development of prototype SLA products by troubleshooting hardware and firmware issues.
- Managed the the prototype printer fleet in North Carolina; wrote custom firmware, integrated sensors, made compatibility reworks between prototype versions, and repaired broken hardware.
- Authored, validated, and executed calibration routines, such as a printer force calibration, and printer routines, such as homing, to maintain hardware precision.

Print Process Intern **Jan 2022 – August 2022**
Formlabs *Durham, North Carolina*

- Developed and executed a comprehensive particle image velocimetry system, including the design of the experimental test rig, image capture optimization, and custom image analysis code, to quantify viscous fluid flow in an exothermic system squishing between compliant materials as it changes phases.
- Developed a thermal history model for an in-development 3D printer using python and characterized performance of heat sinks, heat pipes, and other components that affect printer thermal performance.

Physics Student Researcher **May 2019 – August 2021**
Mount Allison University and the A2 Collaboration *Sackville, Canada and Mainz, Germany*

- Conducted subatomic particle physics research with the A2 Collaboration at the Mainz Microtron in Germany.
- Collected data during electron-beam runs and resolved software and hardware issues as they arose.
- Developed a correction method in Python for the time-walk effect for the data collected from the Glasgow Pair Polarimeter, a new photon beam polarization detector.
- Wrote C++ code and used software to design and simulate new photomultiplier and fiber optic configurations that would better capture helium scintillation light within the Active Helium Target (see honours thesis project.)

Teaching Assistant **Sept 2018 – Dec 2020**
Mount Allison University *Sackville, Canada*

- Facilitated experiments, instructed students on the use of equipment such as oscilloscopes and multimeters, and corrected lab reports for General Physics I, General Physics II, and Data Acquisition and Analysis.

EDUCATION

B.Sc., Honours Physics, Minor in Math
Mount Allison University *Sackville, Canada*

- Graduated with Distinction, First Class Honours, Dean's List Student, Varma Scholar, GPA: 3.9

SKILLS & INTEREST

Software: Python | LaTeX | Git | CERN ROOT | Linux | CAD (Onshape) | Grafana | SQL | BigQuery | pandas
Manufacturing: Waterjet | Laser cutter | Soldering | 3D printing | Metrology | Machine shop training
Interests: Enjoy road biking, classical ballet, and boxing.