# Tom Randolph

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## SUMMARY

I am a young engineer looking to start my career in the field of additive manufacturing. My professional experience, as well as my personal and academic projects, have given me the skills and experience to help innovate the future of 3D printing.

## EDUCATION

**University of Massachusetts**, Amherst, MA — **2014 - 2018**
B.S. in Mechanical Engineering — GPA: 3.4/4.0

## RELEVANT EXPERIENCE

**FORMLABS,** Somerville, MA
**Systems Integration Intern** | Summer 2017
- Spearheaded efforts to develop high-temperature calibration solutions for SLS 3D printers
- Constructed calibration techniques using numerical analysis and computer vision
- Troubleshooted and repaired complex electro-mechanical printer assemblies
- Tested and wrote procedures to guide users through calibration processes

**UMASS AMHERST,** Amherst, MA
**Additive Fabrication Lab** - **Lab Assistant** | Spring 2018
- Developed method of parsing and preparing proprietary G-Code for LENS printer
- Designed, setup, and documented complete workflow for printing parts
- Experimented using Artificial Neural Networks to calibrate printer parameters

**UMass Innovation Shop** - **Machinist Assistant & Instructor** | Fall 2016
- Led my peers through a basic machine shop training, familiarizing them with milling machines, hand tools, and shop safety
- Advised students on how to best setup and mill parts to reduce time, effort, and cost for their final project

**GENERAL DYNAMICS,** Pittsfield, MA
**Mechanical Design Intern** | Winter 2016/2017
**Systems Engineering Intern** | Summer 2016
- Performed requirements analysis for various technical refreshes
- Tested and inspected hardware built to Mil-Spec in several labs
- Created detailed models of hardware in Creo Parametric CAD
- Worked with test engineers to design test fixtures for shock and vibe stress tests

**COOL SPRINGS NURSERY,** Banner Elk, NC
**Mechatronics Engineer** | Summers 2015 & 2016
- Designed electromechanical user interface to retrofit into existing mechanism
- Wrote C++ libraries and programs to manage sensors, and actuators with microcontroller
- Designed and assembled modular, robust control console and PCB

## PROJECTS & COMPETITIONS

**UMass Supermileage Team** | Spring 2018
- Design lightweight, ergonomic, aesthetic steering yoke for car
- Assembled steering assembly from carbon fiber, aluminum and 3D printed polymer parts
- Planned and assembled full suite of sensor radio telemetry for car
- Presented car to judges, highlighting creative use of tech; won 3rd place in presentation

**Senior Capstone Design** | Spring 2018
- Advised team on core technology selection based on personal and professional experience
- Prototyped circuits, electro-mechanical assemblies and control software
- Modeled computer vision, mechatronic, and inverse kinematic control systems in Python
- Designed and manufactured low cost, robust, robotic arm

**General Dynamics Autonomous Vehicle Competition** | Spring 2014
- Collaborated with peers to design a model car capable of navigating mazes
- Led electrical and mechanical design efforts on the car
- Presented car to staff of GD, highlighting design intent and construction
- Won both physical and presentation competition

**Student Makerspace at Monument Mountain Regional HS,** Great Barrington, MA | Spring 2014
- Designed and organized a lab with engineering equipment and materials for students
- Prepared and presented initiative, goals, and budget to board of School Center Inc.

## SKILLS

**Software**
Solidworks
✔(CSWA)
Creo Pro/E
ANSYS
OnShape
MathCad
Eagle EDA

**Hardware**
Arduino
Raspberry Pi
Oscilloscope
Multimeter
Lab Power Supply

**Programming**
Python
Arduino
MATLAB
Linux CLI
C++
OpenCV

**Fabrication**
Mill
3D Printing
Lathe
Hand tools
Soldering
PCB Prototyping
CNC
Laser Cutter

**Other**
Public Speaking
Professional Writing and Communication

## INTERESTS

Rugby
Electric Bass
Hiking
R/C Planes
IoT and Web Dev.
Deep Learning