# Tom Randolph

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## SUMMARY

I am a young engineer looking to start my career as a multi-disciplinary design engineer. My professional experience, as well as my personal and academic projects, have given me the skills and experience to help innovate cutting-edge consumer products.

## EDUCATION

**University of Massachusetts**, Amherst, MA
B.S. in Mechanical Engineering

**2014 - 2018**
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