

Rachael Rosko

Cell Phone: 813-310-8271 ◦ Email: rachaelrosko1@gmail.com ◦ US Citizen ◦ 9100 Dr. M.L.K. Jr St N, St. Petersburg, FL 33702 APT516

EDUCATION:

Massachusetts Institute of Technology, Cambridge, MA *August 2023-August 2024*

M.Eng Advanced Manufacturing and Design

Florida State University, Tallahassee, FL *August 2014-December 2018*

B.S. Mechanical Engineering, GPA 3.457/4.0

Study Abroad, Valencia, Spain *August 2018-December 2018*

PROFESSIONAL EXPERIENCE:

MicroMaterial's INC

Chief Design Engineer *August 2019-2023*

- Engineered 61 individual parts, including summary portfolio, process documentation, and itemized cost report for \$200,000 high-precision Laser-Heated Pedestal Growth (LHPG) machine for growing sapphire fibers for fiber optics
- Directed effort between machinists, suppliers, and team members to manufacture and implement machined parts
- Designed motor and gear-train system for >99% motor stability at 4 ± 2 mm/min using custom made encoder data interface in VS C#; wired by hand and created wiring diagram for motor, limit switch, and controller connections

Automation Programmer *August 2019-2023*

- Coded .NET application in VS C# using object-recognition OpenCVDotNet and Github wrappers for proportional laser control
- Calculated molten zone temperature (>2000°C) using Black Body Radiation, then optically filtered camera image using ND filters, then programmatically refined image of sapphire molten zone based on optimal sensitivity of RBG pixel values
- Proportionally controlled laser based on sensitivity of pinout hardware and response time between laser, sapphire, and computer; 3-step proportional control using user-set brightness/RBG value and user-controlled tolerance
- Programmed control of linear actuator stages using best fit line with a moving box average at the bottom of the focal point that maintains the fiber at the center of the focal point of the laser during 8 hours of slow, controlled, growth
- Modernized user interface with auto-harvest safety features that allow for unsupervised automated overnight growth
- Improved transmission quality of fiber optic cable by 200%, tripled production, and increased revenue by 100% over 6 months.
- Co-inventor on provisional patent application #63426801 "Automation Method for Laser-Heated Pedestal Growth"

Manufacturing Engineer *August 2019-2023*

- Growth, polish, and transmission measurement of $75\mu\text{m} - 200\mu\text{m} \times 2\text{m}$ high quality sapphire crystal fibers for fiber optics
- Operated laser heated pedestal growth and performed optical alignment of class 4, 1000 W, 9-12 μm wavelength laser and related visual components to optimize growth conditions for repeatability
- Created procedure for logging purchase orders, auto-recording conditions throughout growth, post-process fiber-tracking, and calendar for predicting lead time and estimated ship-date; working towards ISO certification

Catamount Machine Works, Machinist *June 2020- 2022*

- Performing setup, teardown, metrology analysis, and machining of production level parts with Haas CNC mill and lathes
- Extended learning goals: understanding process for manufacturing parts from drawing to final product for design enhancement

Fiat Chrysler Automobiles (FCA)

Metrology Quality Intern, Toledo Jeep Assembly Complex, Toledo, OH *May-August 2018*

- Programmed Excel VBA code to translate 127 large scale OEM matrices, conserving 80+ hours of product launch time

Durability Quality Intern, Chelsea Proving Grounds, Chelsea, MI *May-August 2017*

- Launched pilot program to expand quality insight for post-durability-test vehicle teardown from car to metal frame base
- Fiat Chrysler adopted program for incorporation in quality verification process to elucidate defects and reduce warranty costs

Engine Quality Intern, Dundee Engine Plant, Dundee, MI *May-August 2016*

- Evaluated micro-structural surface finish of cylinder bores in 1.4L engines for torn and folded metal to improve warranty cost and oil consumption by analyzing profilometer readings, fax film, and surface finish Rpk, Rvk, Rk parameters

LEADERSHIP AND AWARDS:

Society of Automotive Engineers, President (Baja, Formula) *Fall 2016- June 2018*

- Headed team of 40 students - 40% increase in participation; started STEM community outreach to local girls middle school

FSU Academic Leadership Award *April 2018*

- Accolade for excellence in leadership and driving change in community, awarded to one student per college

Joint Management Counsel, Florida State Student Representative (FAMU-FSU) *Fall 2017- May 2018*

- Drove financial and social change in College of Engineering through meetings with Florida Board of Governors

Garnet and Gold Scholar, Program Inductee *December 2018*

- University recognition for excellence in leadership, internship, and international experience

RELEVANT SKILLS AND COURSES:

Skills and Certifications

- CSWA (Certified Solidworks Associate) license
- Proficient Software Experience: C#, Visual Studio .NET, C programming, Excel VBA, Labview, La Tex, Mathcad, Matlab, Solidworks, Autodesk Fusion 360, Autodesk Autocad, and Creo 2.0 Parametric
- Proficient Electronics Experience: soldering, wiring, motor and limit switch installation, VS C# interface, motor tuning
- Courses: Control of Manufacturing Processes, Management for Engineers, Engineering Systems Design, Design and Analysis of Controls Systems, Advanced Controls (Digital), Advanced Dynamics, Vehicle Design and Formula Hybrid Senior Design
- Soft Skills: Team player, gritty, self-starter, problem-solver, contributor, proactive, catalyst, focused, passionate, growth-oriented

ADDITIONAL EXPERIENCE:

Girls Mentor , Bridge Building Competition, <i>Ferrell Magnet Middle School, Tampa, FL</i>	<i>December 2017-February 2018</i>
ACE Math Tutor , Algebra and Trigonometry, <i>Valencia, Spain</i>	<i>August-December 2018</i>
Teachers Assistant , ME Tools and Mechanical Systems 1, <i>Tallahassee, FL</i>	<i>January-May 2018</i>
Community Service Hours , 92 Cumulative Hours (From Spring 2018 Unofficial Academic Transcript)	<i>August 2014-December 2018</i>