

Nick Anthony

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Summary

Skilled R&D engineer with 8 years of experience working on a fast-paced interdisciplinary engineering team. I bring an enthusiasm for research and a strong background in optics, electronics, and software. I excel at creative problem solving and have a proven ability to tackle complex problems.

Education

M.S. in Applied Physics – Optical Materials and Devices

University of Oregon, 2015

B.S. in Physics, Spanish Minor

University of Oregon, 2013

Skills

- | | |
|------------------------------------|----------------------------------------|
| • Electronics Design / PCB Layout | • Embedded Firmware |
| • CAD | • Hands-on Fabrication / Soldering |
| • Technical Writing | • Test Automation and Equipment Design |
| • Data Analysis / Machine Learning | • Signal Processing |
| • Interferometry | • Design of Experiments |

Software

- | | |
|-----------|------------------------------------|
| • Python | • Matlab |
| • Java | • Inventor / SolidWorks / PTC Creo |
| • C / C++ | • EAGLE / Altium ECAD |
| • Qt | • SPICE |
| • Git | • Zemax OpticStudio |

Professional Experience

Research Optical Engineer *Backman Biophotonics Lab, Northwestern University*

July 2018 - Present

- Responsible for design, and calibration of hyperspectral research microscopes for live cell imaging.
- Leads software development for automated data acquisition and data analysis.
- Develops calibration standards and procedures.

Device Systems Engineer *Brewer Science Inc.*

September 2015 - June 2018

- Works within multidisciplinary R&D team to develop printed electronics technologies
- Develops proof of concept technology into functional prototypes and products
- Leads hardware and software development including PCB design, firmware, version control, and user interfaces
- Analyzes test data, develops predictive models, and presents results to team members
- Designs and constructs new equipment to enhance group's R&D and production capabilities
- Delivers presentations to technical conferences, customers, and collaboration partners around the globe
- Creates and maintains technical documentation for devices and processes

Research Associate Co-Op *Brewer Science Inc.*

January - September 2015

- Characterization and enhancement of spin-coated photo-sensitive encapsulation materials
- Development of automated high-precision spray coating equipment
- Contributed sensor fusion algorithm to patent US20170038263A1

Professional Development and Affiliations

Coursera Data Science Specialization *John Hopkins University*

December 2017-March 2018

- Completed 8 courses covering a range of topics in regression and machine learning

Member of the Optical Society (OSA)

January 2017-Present

Contributor to [PX4](#) Open Source Autopilot Project

March 2017-Present

Certified Part 107 Remote Pilot

February 2018-Present

Academic Research Experience

GRIN Phase Plate Design and Characterization University of Oregon, McMorran Group June-December 2014

- Collaborated with Voxel Nano Inc. to develop 3D printed optical device manufacturing processes
- Built a Mach-Zehnder interferometer for high resolution characterization of 3D-printed GRIN phase plates to be used in testing of NASA's James Webb Space Telescope
- Developed user interface in Python to generate phase plates print files from Zernike coefficients
- Instructed undergraduate researchers in theory and operation of Mach-Zehnder interferometer

External Cavity Diode Laser University of Oregon Graduate Internship Program August-September 2014

- Designed and constructed tunable external cavity diode laser in Littman-Metcalf configuration
- Built compact and easily tunable laser with 4 nm tuning range and a 1.8X increase in output power

SEM Electron Diffraction University of Oregon, McMorran group May-June 2013

- Worked to create Laguerre-Gaussian beams within SEM to investigate potential imaging applications
- Designed specialized components to hold gratings at specific point in SEM for maximum diffraction efficiency

Leaf-Cutter Ant Mandible Measurement University of Oregon, Schofield group February-June 2013

- Worked with research group investigating how leaf-cutter ant colonies conserve energy through task specialization
- Developed streamlined workflow to quickly image and measure mandibles using scanning electron microscope
- Generated archive ESEM and optical microscope images of ant mandibles.
- Analyzed images to extract features for statistical analysis.

Low-Cost Spatial Light Modulator University of Oregon, McMorran group May-December 2012

- Modified consumer-grade projector to build spatial light modulator (SLM) for five percent of the cost of commercially available SLM systems. SLM was used as demonstrator of diffraction and holography

Community Service

Python Lessons July 2017-January 2018

- Taught basic programming skills to colleagues who had no previous programming experience.

Elementary School Science Outreach June-September 2015

- Performed scientific demonstrations alongside colleagues at Brewer Science Inc. at elementary schools to foster interest in science among students

Sisters Science Club and Sisters High School January-June 2014

- Built a robot to generate student interest in science and engineering
- Taught basic programming principles to inexperienced students
- Provided technical support to students in applied engineering classes

"Ten Friends" organization in Nepal July 2007 and August 2011

- Traveled independently through rural regions of eastern Nepal
- Delivered medical equipment and educational supplies to isolated communities
- Networked with local educators to assess need for supplies and training within the public school system