Michael D'Argenio

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Raleigh, NC 27606

Education Experience

North Carolina State University, Raleigh, NC

M.S. Computer Engineering GPA: 4.0 Graduation: May 2020
B.S. Electrical Engineering GPA: 3.7 Graduation: Dec 2014

Teaching & Communication Certificate: Completed 100 hours of coursework studying effective teaching practices and research. Developed and delivered curricula in-person and online for diverse audiences.
Relevant Projects: JPEG Decoder, FatFS SD Datalogger, LCD Graphics Driver, Waveform Generator, miniC Compiler, Memory Cache, Branch Prediction, ecoPRT Vehicle Control System, GPS Line-Following Car
Thesis Research: Developed low footprint, gprof-based profiler to analyze performance in microcontrollers.

Skills

Programming: C, C++, Python, Matlab, HTML/CSS, Javascript, Verilog, Java, Visual Basic, LLVM, Flex/Bison
Educational Dev Platforms: Arduino, Raspberry Pi, CircuitPython, FRDM ARM Cortex MCUs, Scratch
Other Skills: Lab management, rapid prototyping, soldering, circuit board fabrication, CAD, laser cutting, 3D printing, CNC router, woodworking, grant/technical/blog writing, broadcast communications

Current Work Experience

Ravenscroft School, Raleigh, NC

High School Engineering/Robotics/Computer Science/CAD/Innovations Teacher, Aug 2020-present

- Designed courses for a hybrid learning environment to explore new concepts with a heavy focus on real-world application and project-based learning to tackle complex, open-ended problems.
- Led exploratory elective courses to expose students to STEM disciplines, prepare them for college and beyond, and teach them how to employ design thinking to produce creative, collaborative solutions.
- Planned more inclusive STEM-based electives to connect with underrepresented students.

Innovation Lab Co-Coordinator, Aug 2020-present

- Oversee an open design lab/makerspace/shop space that serves all students, teachers, and classes.
- Manage purchasing, inventory, documentation, procedures, safety policies, and reservations.
- Provide technical expertise, conduct training, teach workshops, and develop supplemental materials.

Raleigh Community Kickstand Bicycle Cooperative, Raleigh, NC

Co-Founder, Webmaster, Grant Writer, & Mechanic, May 2017-present

- Helped found an all-volunteer, non-profit that pools community resources, repairs bicycles, teaches maintenance skills to enable access to safe, reliable, self-sufficient transportation for those in need.

Prior Work Experience

North Carolina State University, Raleigh, NC

The Engineering Place – High School Summer Camp Coordinator & Instructor, Mar 2020-Aug 2020

- Designed online, synchronous, weeklong camps to introduce students to the engineering mindset, interact with technical concepts, work collaboratively, and apply the knowledge to solve problems.
- In "Possibilities of Python", students learned computational thinking and coding in an interactive, project-based environment. Students coupled their knowledge with existing libraries to explore unique applications including generative art, data science, music, game design, machine learning, and more.
- In "Problem-Solving with Arduino", students learned circuits and programming in a dynamic, hands-on environment. Students experimented with sensors, displays, and motors to create projects to interact with the world around them like theremins, weather stations, remote lights, photobooths, and more.

Teaching Assistant for Electrical & Computer Engineering Senior Design Courses, Jul 2018-May 2020

- Oversaw a lab with tools, equipment, and components for the 200 students in the design program.
- Managed course materials/websites, graded assignments, and developed supplemental materials.
- Taught workshops on embedded software development and debugging methodology.
- Provided technical and management expertise for projects across a wide variety of disciplines.
- Proposed and mentored a project for undergrads to design a product to improve home router security.

Duke University Talent Identification Program (TIP), Durham, NC

Instructor for Electrical Engineering Course, Summer Studies Program, May 2019-Aug 2019

- Designed a rigorous course covering analog circuits, digital logic, power systems, programming, and product development to provide authentic, hands-on engineering design experiences in a lab setting.
- Facilitated a dynamic, creative learning environment in which students collaborated to engage with course material through discussions, practice problems, lab exercises, activities, and projects.
- Fostered an open, colloquial classroom in which the students discussed and presented on the NAE's Grand Challenges for Engineering and thought critically about the role of engineers within society.
- Students conceived and created final design projects, including Spirograph, Tetris, Medication Tracker, Sidescroller, Snake, DanceBot, DDR, Magic Piano, Fetchbot, Name that Tune, D&D Helper, LED Matrix.

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Schneider Electric, Staff Electronics Engineer, Raleigh, NC

Senior Electronics Hardware Developer, Electronics Design Group, Aug 2017-Mar 2018

- Simulated, developed, and tested embedded hardware and generated supporting documentation.
- Designed a safety interface module which provides a safe-stop operation to critical system.
- Designed an analog input/output module for current, voltage, and temperature.

University Senior Design Project Coordinator, Jan 2016-Mar 2018

- Created project proposals, generated funds, managed projects, and mentored students.

Continuous Engineer, NA Electric Vehicle Products, Feb 2015-Aug 2017

- Evaluated customer returns using 8D-analysis to determine root cause and implement containment, corrective, and preventative actions based on the failure mode.
- Led product adaptation projects for range expansion, component obsolescence, cost reduction, etc.
- Explored trends, participated in standards committees, and developed new product proposals.
- Managed continuous engineering budget and project plan for product line.

Duke Energy, Co-Op, Charlotte & Raleigh, NC

Protection/Control Engineering & Transmission Asset Management, Feb 2015-Aug 2017

- Developed a program to store parts data and generate standard transmission line structure drawings.
- Analyzed and created a summary report document on dynamic line rating technologies.
- Configured substation data managers and HMIs to monitor and control relays within a substation.
- Developed standards to upgrade from serial to IP communications for control of protective relays.

WKNC Raleigh 88.1 FM, NC State University, Raleigh, NC

Program Director: Aug 2013-May 2014
Operations Manager: Sep 2011-Dec 2012, May 2013-Aug 2013
Blog Editor: Jan 2013-May 2013