Michael D'Argenio

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mjdargen@gmail.com
Raleigh, NC

Education

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, Assembly
Educational Dev Platforms: Arduino, Raspberry Pi, CircuitPython, FRDM ARM MCUs, LC-3, Scratch, Colab, repl
Other Skills: Lab/shop management, rapid prototyping, soldering, electronics fabrication, CAD, 3D printing, CNC, laser cutting/engraving, vinyl cutting, VR, woodworking, sewing, embroidery, grant/technical/blog writing, creating safety protocols, video/audio editing, podcasting, broadcast communication

Current Work

Ravenscroft School, Raleigh, NC

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

- Redesigned 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.
- Created more-inclusive, creative 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, safety policies, tutorials, and student-led projects.
- Provide technical expertise, conduct training, teach workshops, and develop supplemental materials.

FIRST Tech Challenge Coach, Aug 2021-present

- Launched an after-school program that spawned two competitive, rookie FIRST Tech Challenge teams.

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

North Carolina State University, Raleigh, NC

Lecturer, ECE 109 - Intro to Computer Systems, Electrical & Computer Engineering Department, May 2021-Aug 2021

- ECE 109 is the first course for ECE undergrads. It provides a bottom-up approach to computers from bits, binary data representations, transistors, digital logic, processor design, to assembly programming.
- Revised course to facilitate more dynamic engagement with and discussion about the concepts.
- Created engaging, scaffolded LC-3 assembly projects that included unit tests to provide students with incremental feedback and checkpoints as they completed their first programming assignments.
- Conducted research and drafted a proposal on how to revise the course sequence to improve retention and diversity in the department by ensuring all students have the requisite knowledge and experience.

High School Summer Camp Instructor, Mar 2020-Aug 2020 & Jun 2021-Aug 2021 & Jun 2022-Aug 2022

- Designed online and in-person 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.
- In "Powering Medicine", students will explore engineering through the lens of medicine via compelling projects in accessibility, wearables, and disease detection to improve the lives of those around them.

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.

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Prior Work cont'd

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.

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-Aug 2013
Blog Editor: Jan 2013-May 2013