



Michael D'Argenio

Education

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North Carolina State University, Raleigh, NC

M.S. Computer Engineering - 4.0 GPA - May 2020

B.S. Electrical Engineering - 3.7 GPA - 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: Developed low footprint, gprof-based profiler to analyze performance in microcontrollers.

Skills

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Programming: C, C++, Python, Matlab, HTML/CSS/JS, Java, Verilog, Visual Basic, LLVM, Assembly

Edu Dev Platforms: Arduino, Raspberry Pi, ARM MCUs, Circuit Python, LC-3, Scratch, Colab, repl

Other Skills: Lab management, rapid prototyping, soldering, electronics fabrication, CAD, CNC, 3D printing, graphic design, laser cutting, vinyl cutting, woodworking, embroidery, sewing, VR, blog/grant/technical writing, safety protocols, video/audio editing, podcasting, broadcast

Current Work

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North Carolina School of Science & Mathematics, Durham, NC

Computer Science Instructor, Aug 2022-present

- Teach a diverse range of courses including Web Development, Procedural & Object-Oriented Programming, Advanced Java, Game Design, Fundamentals of Object-Oriented Design, and Art, Technology, & Computing.
- Developed new curriculum, enhanced existing curriculum, and molded curriculum pathways to engage a more diverse audience in our courses.
- Create unique, experiential opportunities for students through mini-terms, forums, and independent studies in topics such as climate justice, generative art, OS development, computer graphics, AI, etc.
- Mentor clubs and competition teams to provide opportunities to further develop technical skills.
- Serve as the coordinator for the annual hackathon that engages students across the state to create innovative hardware and software projects while interfacing and learning from industry professionals.
- Manage the recruitment, supervision, and coordination of student teaching assistants.
- Coordinate placement exams for incoming students to ensure equitable opportunities for success.

Raleigh Community Kickstand Bicycle Cooperative, Raleigh, NC

President/Co-Founder/Mechanic, May 2017-present

- Founded 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

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Ravenscroft School, Raleigh, NC

Engineering/Robotics/Computer Science/Design & Making/CAD Teacher, Aug 2020-Jun 2022

- 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.
- Created more inclusive, creative STEM-based electives to connect with underrepresented students.
- Lead 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.
- Develop curriculum maps and direct strategic alignment for college-prep STEM courses.

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

North Carolina State University, Raleigh, NC

High School Summer Camp Instructor, Mar-Aug 2020 & Jun-Aug 2021 & Jun-Aug 2022 & Jun-Aug 2023

- Designed online and in-person weeklong camps to introduce students to the engineering mindset, interact with technical concepts, work collaboratively, and apply their knowledge to solve problems.
- In "Possibilities of Python", students learned computational thinking and coding in an interactive, project-based environment exploring generative art, data science, game design, music, AI, and more.
- In "Problem-Solving with Arduino", students learned circuits and programming in a hands-on setting. They experimented with sensors, displays, and motors to interact with the world around them.
- 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.



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● Prior Work

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North Carolina State University, Raleigh, NC

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

- 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 diversity and retention in the department by ensuring all students have the requisite knowledge and experience.

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

- Oversaw a lab with tools, equipment, and components for the 250+ students in the design program.
- Managed course materials/websites, graded assignments, and developed supplemental materials.
- Provided technical and management expertise for projects across a wide variety of disciplines.

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.

● Prior Work

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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, May 2012-Aug 2014

- 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



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