

Matthew Cox

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EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)

MENG, ELECTRICAL ENGINEERING
2024 | Cambridge, MA
In Progress

SB, DOUBLE MAJOR - ELECTRICAL ENGINEERING AND MATHEMATICS
2023 | Cambridge, MA
GPA: 5.0 / 5.0

THOMAS JEFFERSON H.S. FOR SCIENCE AND TECHNOLOGY

2019 | Alexandria, VA

COURSEWORK

Solid-State Circuits (6.301)
Nanoelectronics (6.012)
Electromagnetics & Applications (6.013)
Signal Processing (6.003)
Computation Structures (6.004)
High Speed Comm. Circuits (6.776)
Power Electronics (6.334)
CMOS Analog IC Design (6.775)
Advanced Power Electronics (6.332)
Power Electronics Lab (6.1311)
Nanofabrication (6.152)
Electromagnetic Waves (6.630)
Feedback Control (6.302)
FPGAs (6.2050)

SKILLS

ELECTRICAL ENGINEERING

Analog Circuits

RF Circuits

Power Electronics

IC Design

• Cadence/Virtuoso • Keysight ADS

PCB Layout

• Eagle • Altium Designer

PROGRAMMING

Proficient (over 10,000 lines):

• Python

Experienced (over 1,000 lines):

• \LaTeX • Arduino • Java • C • C++ • HTML •

Javascript

Familiar (over 100 lines):

• Assembly (RISC-V) • Minispec HDL •

Bash • Matlab • SystemVerilog

EXPERIENCE

MIT | MENG RESEARCH (UNDER RUONAN HAN)

September 2023 - Present | Cambridge, MA

- Researching applications of large language models to assist in circuit design.

ANALOG DEVICES | ANALOG IC DESIGN INTERN

June - August 2023 | Wilmington, MA

- Designed a new topology of analog buffer with fixed 50-ohm output impedance.
- Voted by Analog Devices employees as "Most Creative" intern project.

NORTHROP GRUMMAN | MMIC/RFIC DESIGN INTERN

June - August 2021 | Baltimore, MD

- Worked on a novel RF transmit/receive switch MMIC to optimize matching, simulate performance, improve device models, and begin layout.

JOHNS HOPKINS APPLIED PHYSICS LAB | INTERN

June - August 2020 | Laurel, MD

- Designed, built, and tested power supply circuitry for UAVs used to demonstrate AI warfighting capabilities.
- Power supply circuitry to be used in several additional APL projects.

SHARED SPECTRUM COMPANY | INTERN

June - August 2018 and 2019 | Vienna, VA

- Wrote and tested software for automated drone-based RF spectrum collection and RF emitter triangulation on DARPA project.
- Designed, built, and tested hardware and software for 2.4GHz spectrum usage visualizer, including RF circuit and PCB design and assembly.
- Designed, wrote, and tested software to collect various RF measurements in connection with NOAA research project.

AWARDS

- Member of Phi Beta Kappa honor society
- Won Northrop Grumman scholarship (2021)
- Won Amateur Radio Digital Communications (ARDC) scholarship (2022)

ACTIVITIES AND INTERESTS

- MIT Educational Studies Program (2019-present) - *Treasurer* (2021), *Head Webmaster* (2022-present), *Director of Spark* educational program (Mar 2022), regularly teach classes to middle/high school students
- Next House (dorm) *Makerspace Chair* (2020-2022)
- MIT Radio Society (2019-present) - elected *Station Manager* (2020-2022), *Vice President* (2023-2024)
- Amateur (Ham) Radio - highest ("Extra") license class since August 2018