

THOMAS E COOR

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OBJECTIVE

To create exciting electrical, mechanical, and acoustic systems that directly improve the lives of others.

EDUCATION

The Cooper Union for the Advancement of Science and Art, New York, NY Graduated May 2024
B.E. Electrical and Computer Engineering

RELEVANT COURSES

Digital Signal Processing, Electronics, Data Science, Speech Processing, Arch. Acoustics, Mech. Vibrations

AWARDS

Finalist, Guthman Musical Instrument Competition, *Lorentz Violin* 2024

One of 10 finalists for the 2024 Guthman Musical Instrument Competition, the international musical technology competition hosted at Georgia Tech. Designed a novel instrument that uses magnetic disks of varying waveforms that spin over an inductor to generate a current whose frequency is heard as musical pitch. More information: <https://guthman.gatech.edu/>

WORK EXPERIENCE

Audio and DSP Systems Engineer, Frontier Audio Labs, Chicago, IL February 2025 - April 2026

Worked with a startup team designing and implementing ANC, 3D-Awareness, and 90dB Limiter for next-gen hearing protectors. Ensured electrical system could support audio requirements. Consistent hardware, software, and acoustic debugging using microphones, speakers, function generators, and oscilloscopes. Developed tests and measurement limits for detecting various failure modes. Performed qualitative acoustic development by working with customers to optimize comfort and clarity. Travelled frequently to China to lead acoustic validation and testing and to work with vendors.

Acoustic Systems Co-op, Bose Corporation, Framingham, MA Summer - Winter 2024

Designed next-gen calibration scheme and algorithms that enabled users to calibrate the EQ of their soundbar product using a microphone, replacing the current system.

Architectural Acoustics Intern, Threshold Acoustics, LLC, Chicago, IL Summer 2023

Assisted with performing acoustic simulation, building digital audio testbenches, constructing and testing a Dodecahedron speaker, and taking various sound level measurements in performance spaces around Chicago.

Studio Assistant Intern, Andy Cavatorta Studio, Brooklyn, NY Summer 2022

Assistant to artist and engineer Andy Cavatorta in the design and building of audio sculpture titled "The Whale" for the MIT Museum, including sensor calibration, musical tuning, creating custom electronic hardware, and generating music from medieval music and whale songs using a recurrent neural network.

PROJECTS

Open-Source, Repairable Induction Water Boiler Ongoing

Designing a consumer-centered appliance with a theoretically infinite lifespan. Authored PCB and firmware. Emphasizing standard parts and low-waste design.

Mixed-Signal Radio Receiver, Senior Capstone Project Fall 2023-Spring 2024

A HAM radio (14.35 MHz) receiver, including an antenna, Low-Noise Amplifier, IF Mixer, and digital Single-Sideband Demodulator, and speaker.

Earth's Metals Reserves, Data Science for Social Good Final Project Fall 2023

An interactive webapp that game-ified discussion of the the world's metal reserves and its metal consumption through the lens of electrification and sustainability

LEADERSHIP

Chair, Poco a Poco: The Cooper Consort Fall 2021 - Spring 2024

Elected head, arranger, bassoonist and pianist for Cooper Union's orchestra.

SKILLS

Embedded C, **Python**, MATLAB/Simulink, **Woodworking**, Electronics Testing, **KiCAD**, LTspice, **Manufacturing Design**, AutoCAD, **Solidworks**, Manual Machining, **CNC Machining**, Filament/SLA Printing, **L^AT_EX**
