

Nicholas Boyko

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Master's student pursuing challenges at the intersection of signal processing, sound engineering, and machine learning.

EDUCATION

New York University

New York, NY

Master's in Music Technology

Expected graduation: May 2025

Bachelor's in Music Technology, minor in Mathematics, cum laude

2020 – 2024

Coursework: Digital Signal Theory; Honors Linear Algebra; Audio Streaming Technology; Musical Acoustics; Deep Learning & Music Information Retrieval; Analog & Digital Electronics; Differentiable DSP

EXPERIENCE

New York University

New York, NY

Digital Signal Theory Teaching Assistant

2025

- Provided group and one-on-one tutoring for DSP course. Topics included convolution, Fourier Transform theory, and FIR/IIR filters.

Music Department Technology & Inventory Support

2022 – 2025

- Supported 100+ staff, faculty, and students to maintain >250 computers, studio devices, and file servers.
- Maintained 100% user satisfaction rating while on call for hardware, network, and security issues.
- Managed equipment inventory of 7,000+ items for the Music & Performing Arts department at NYU Steinhardt.

Dolan Studio Assistant Engineer

2023

- Ran Pro Tools recording sessions for jazz, pop, and orchestral ensembles in university recording studio.
- Led equipment setup and teardown for sessions, including patchbay wiring, mic placement, and I/O setup.

Freelance

Audio Fingerprinting for Advertisement Search | Python

Summer 2024

- Hired to investigate feasibility of a fingerprinting algorithm for audio matching of an advertisement library.
- Implemented spectral peak-picking algorithm in Python with over 90% detection accuracy on test dataset.
- Prepared feasibility analysis and technical write-up, and delivered results to client.

Music Technology Tutoring

2020 – Present

- Tutor homeschool students ages 10+ with music technology, composition, and electronics.
- Topics: Digital and analog synthesis, audio production, music theory & performance, and Arduino programming.

PROJECTS

Hyperbolic Genre Embeddings for Music Classification Tasks | Python

- Master's thesis in Music Technology, under the advisement of Dr. Brian McFee and Dr. Juan Pablo Bello.
- Developing music genre classification framework, inferring hierarchical label structures to improve accuracy.
- Utilizing audio feature extraction techniques and metadata-informed genre taxonomy analysis.

Dynamic Stochastic Wavetable Synthesis | Python

Boyko, N. & Canfield-Dafilou, E. (2024). Spectral Analysis of Stochastic Wavetable Synthesis. In *Proceedings of the 27th International Conference on Digital Audio Effects (DAFx24)*.

- Presented novel sound synthesis technique utilizing stochastic lookup-table alterations for audio generation.
- Implemented and extended existing algorithm in Python prototype with spectral analysis.

ACTIVITIES

WNYU Radio

New York, NY

Host & Archivist

2021 – 2025

- Host of *Hellhole*, weekly metal show on college radio station; curate, arrange, mix, & archive live music broadcast.
- Assisted in the archival process of 1,000+ physical records, and with creating long-term storage solutions.

ADDITIONAL SKILLS

Certifications & Training: Stanford CCRMA DL4MIR and Differentiable Digital Signal Processing (DDSP)

Awards: Steinhardt Outstanding Service & Leadership Award, NYU Founders' Day Award, Dean's List 2020-2024

Technical Skills: Python, C/C++/Arduino, Max/MSP, Filemaker, Pro Tools, Logic Pro, Ableton Live

Frameworks & Libraries: NumPy/SciPy, librosa, FFmpeg, PortAudio, JUCE, TensorFlow, Matplotlib