Nicholas Boyko

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Audio professional 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***   *2023 – 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. Juan Pablo Bello and Dr. Brian McFee.
- Developed music genre classification framework, inferring hierarchical label structures to improve accuracy.
- Utilized 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*
- Hosted *Hellhole*, weekly metal show on college radio station; arranged, mixed, & archived 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