NOAH SCHAFFER

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Bio

I am a first-year PhD Student in the Computer Science Department at Dartmouth College. I am broadly interested in Human-AI interaction for music creation, with research at the intersection of Deep Learning and Human-Computer Interaction. I look to advance techniques in audio generation and editing to more seeamlessly integrate AI as a tool in the creative process.

Education

Dartmouth College Sept. 2025 – Present
PhD Computer Science

Northwestern University Sept. 2018 – June 2022
B.S./M.S. Computer Science

- GPA: 3.93/4.00 (Magna Cum Laude)

Professional Experience

Doctoral Researcher Sept. 2025 – Present
Dartmouth College *Hanover, NH*

- Member of the SAHAS lab advised by Nikhil Singh. Research focusing on Human-AI systems for music with an interest in generative editing and control protocols for generation.

Software Engineer July 2022 – June 2025
Caterpillar Inc. *Chicago, IL*

- Member of the Emerging Technologies team within Cat Digital. Responsible for technical evaluations, prototypes, and cost/performance analysis of new tools and technologies being onboarded into the digital ecosystem
- Lead effort to explore Generative AI/LLM capabilities within Snowflake. Built a chatbot to assist Cat Digital Operations Support team and help reduce time troubleshooting issues in Cat Digital applications
- Led a team developing an application to analyze Snowflake cost and visualize data movement throughout ETL pipelines. Helped Cat Digital organization reduce spending and breaking changes. Responsible for $45,000 yearly cost savings

Research Assistant Apr. 2021 – July 2022
Northwestern University - Interactive Audio Lab *Evanston, IL*

- Conducted research in musical source separation and audio enhancement under the supervision of Professor Bryan Pardo
- Developed a generative modeling framework to enhance the quality of musical source separation output. Published results of this work as a conference paper at 2022 International Society of Music Information Retrieval (ISMIR) Conference

Publications

Noah Schaffer, Boaz Cogan, Ethan Manilow, Prem Seetharaman, Max Morrison, Bryan Pardo. Music Separation Enhancement with Generative Modeling In *Proceedings of the International Society of Music Information Retrieval (ISMIR)*, 2022

Projects

Music Separation Enhancement with Generative Modeling May 2021 – May 2022

- Created the Make it Sound Good (MSG) post-processor for source separation. Leveraged generative modeling to reconstruct missing frequencies and remove noise from output of widely-used source separation models
- Work accepted to the 2022 International Society for Music Information Retrieval (ISMIR) conference

Teaching

Undergraduate Teaching Assistant - CS 349 (Machine Learning) Spring 2021, Fall 2021
Northwestern University *Evanston, IL*

- Held weekly office hours for students, graded weekly assignments, responded to questions on online forum

Undergraduate Teaching Assistant - CS 396/496 (Deep Learning) Spring 2022
Northwestern University *Evanston, IL*

- Worked with Professor and doctoral teaching assistant to develop the Generative Adversarial Network (GAN) homework

Coding Camp Director and Instructor Jul. 2019 – Aug. 2021
Beyond Limits Academic Program *Stamford, CT*

- Designed and taught an introductory coding course for 6th to 9th graders that focused on web development in HTML and CSS and computer programming in Python
- Provided guidance to future instructors of the course, which was taught again the following school year

Awards

McCormick School of Engineering Summer Research Grant 2021
Northwestern University

McCormick School of Engineering High Honors Fall 2018, Winter 2021-Spring 2022
Northwestern University

- Given to students who receive a 4.0 GPA in a given quarter

McCormick School of Engineering Honors Fall 2018 - Spring 2022
Northwestern University

- Given to students who receive above a 3.75 GPA in a given quarter

Skills

Languages: *Expert:* Python, *Intermediate:* Java, C++, JavaScript, SQL, MATLAB
Machine Learning: *Expert:* PyTorch, Numpy, Scipy, Pandas, *Intermediate:* Scikit-learn
Web Development: *Intermediate:* React Native, React.js, Flask
Developer Tools: AWS (Mechanical Turk, Lambda, S3, EC2, EMR, DynamoDB, API Gateway), Snowflake

Extracurriculars

Northwestern University Marching Band Sept 2018 – present
Member, Percussion Captain (2021)

- Performed at every home football game as well as many University-sponsored events

Phi Mu Alpha Sinfonia Music Fraternity Jan 2019 – Present
Philanthropy Chair

- Responsible for organizing events where chapter choir sings for patients at local hospitals
- Organized and managed chapter Relay for Life team