NOAH SCHAFFER

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Bio

I graduated with a BS/MS in Computer Science from Northwestern University. My research interests lie at the intersection of Machine Learning and Digital Signal Processing, specifically music information retrieval and music generation. I look to contribute to research that develops new tools to assist the people who create and interact with music.

Education

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

- GPA: 3.93/4.00 (Magna Cum Laude)

Professional Experience

Software Engineer July 2022 – Present
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/technologies being onboarded into the digital ecosystem
- Leading effort in exploring Generative AI/LLM capabilities within Snowflake. Created prototype applications for three Cat Digital use cases of native Snowflake LLM Functionality
- Technical developer and Database Administrator for the Cat Digital Snowflake Data Lake. Responsible for setting up data sharing pipelines between Cat Digital and Cat Dealers.
- Lead a team developing an application to analyze Snowflake cost and visualize data movement throughout ETL pipelines. Helping Cat Digital organization save cost and reduce breaking changes with this solution. 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. Work on this published as a conference paper at ISMIR 2022 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 Spring 2021, Fall 2021
Northwestern University - CS 349 (Machine Learning) *Evanston, IL*

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

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)

- Performs 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