Nachiketa Gargi

ngargi@umich.edu · github.com/nacgarg · (650) 335-8753 · Sunnyvale, CA

Education

University of Michigan Class of 2022

B.S.E. in Computer Science (expected)
B.F.A. in Performing Arts Technology (expected)

Relevant Coursework:
Programming and Introductory Data Structures (EECS 280), Calculus II (MATH 116) at U-M
Advanced Machine Learning, Differential Equations, Advanced Mechanics in high school

Clubs and Organizations:
UM::Autonomy (autonomous vehicle design team), MIDAS (Michigan Institute of Data Science) Music Theory, Project Music (experimental musical instrument design)

Work Experience

MIDAS Music Theory - `midasmusictheory.org` Sep 2018 - Present

Research Assistant

- Member of the Michigan Institute for Data Science project "A Computational Study of Patterned Melodic Structures Across Musical Cultures," a collaborative research project between EECS, Math, and Music faculty.
- Developing automatic methods to transcribe scanned images of Indian classical music compositions.

YouSound - `yousound.com` Jun 2017 - Sep 2018

Full Stack Developer

- Created a scaleable chat platform to accompany the rest of the site using Node and socket.io, deployed on AWS.
- Researched and documented setup instructions and assisted in implementation for a web-scale video live-streaming platform (like twitch.tv) using AWS Elemental MediaLive, MediaPackage, and CloudFront.

Primity Bio - `primitybio.com` Jun 2016 - Sep 2016

Software Engineering Intern

- Worked on a web-based realtime, collaborative data analysis platform for clients using test-based development with Node, Angular, and MongoDB.
- This work was presented at an FDA conference in Washington, D.C.

Projects and Publications

Music Makeathon Oct 2018

Realtime Sound-controlled Audio and Video Resampling C++, JUCE, Max

Won first place in the Project Music 2018 Makeathon with a live, realtime remixer that uses FFT to replace input audio with audio from existing songs. In addition, used Max to control video playback based on frequency and amplitude of input audio. The entire project was completed within 18 hours.

ISMIR 2018 Jun 2018 - Sep 2018

Adversarial Reinforcement Learning for Music Generation Python, Keras, LaTeX

Using a generative adversarial network with music theory constraints. ISMIR 2018, Late Breaking Session.

FieldAC Jan 2018 - Apr 2018

FRC Robot and Object Localization C++, OpenCV, Darknet

As part of FRC team, trained a custom model for an object detection framework (YOLOv3) on game pieces. Created field model that used optical flow in conjunction with YOLOv3, onboard LiDAR, and IMU to estimate pose of robot and game pieces on the field. Model was used for an autonomous routine to manipulate the nearest game piece.

Schedulizer Aug 2017 - Jun 2018

School Assistant Bot for Telegram Go, Telegram Bot API

Developed Telegram chat bot used by the majority of students at my high school to assist students with the frequently changing class schedule and upcoming homework assignments.

AutoMuse Oct 2014 - June 2016

Automated computer music composition Python, Keras

Used markov chains and LSTM neural networks to generate music from a dataset of scraped MIDI files.

Skills

Programming Languages	JS, Python, Go, Bash, C++, Java, Max/MSP
Creative Software	Ableton Live, After Effects, Photoshop, Logic
Other	Git, AWS, GCP, Slack, Trello