

NACHIKETA GARGI

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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, L^AT_EX

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. Used a novel method for sensor fusion to maintain a field model using 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.

Kanooli

Oct 2016 - Present

Electronic Music Production

Ableton Live

Regularly produce electronic compositions under the alias Kanooli. Developed branding strategy and accompanying website, and have accumulated over 100k plays through releases on several labels.

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

NACHIKETA GARGI, OCTOBER 2018