

Benjamin Genchel

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Skills

- Algorithms
- Data Structures
- Deep Learning
- Machine Learning
- Data Analysis
- System Design
- Object Oriented Design
- Software Testing
- Optimization
- Digital Signal Processing
- Linear Algebra
- Probability & Statistics
- Embedded Systems
- Soldering

Languages

- Python
- C++
- Java
- MatLab
- JavaScript
- HTML
- CSS

Tools/Libs

- Linux
- Git
- PyTorch
- AWS
- Google Cloud Platform
- Arduino
- SQL
- Ableton Live
- Max/MSP
- Particle.io
- Node.js
- JQuery
- Android Development

Education

M.S. Music Technology

Focus: Music Generation, Music Informatics, A.I.

Georgia Institute of Technology

Expected Graduation: May 2019

B.S. Electrical Engineering

Focus: Computer Science, Machine Learning

University of California, San Diego

Graduated: June 2015

Minor in Mathematics

GPA: 3.5

Experience

Expressive Machinery Lab – Groove Machine, *Software Engineer* Aug. 2018 – Present

- Developing a web based version of the hardware product using Node.js and Pixi.js.
- Maintaining and organization code and repo, setting standards and practices for contributors.
- Managing the dev team - proposing, updating and monitoring tasks via Trello.

GTCMT Music Informatics Group, *Graduate Researcher* Aug. 2017 – Present

- Researching deep learning applications to symbolic music generation. Currently researching the application of deep reinforcement learning. Previous work applied LSTM-RNNs and Autoencoders.
- Volunteered to give presentations on lesser known artificial intelligence systems and music theory.
- Presented on seminal and novel papers in the areas of machine learning and computational music analysis.

Classy.org, *Data Science Intern* Jan. 2017 – May 2017

- Applied LDA and t-SNE to discover and visualize topic clusters in Customer Service text data.
- Reported on recommendation frequency of customer service support articles on the Desk.com platform.
- Worked with DevOps team to set up Redshift data warehouse on AWS using Amazon Cloud Formation.

CleverPet, *Software Engineer* Jun. 2015 – Sept. 2016

- Architected, developed, tested and maintained Python cloud backend on Google Cloud Platform.
- Developed embedded firmware in C++ for interfacing with cloud backend and interacting with users.
- Created and presented a design proposal for mobile apps.
- Collaborated closely with founders and leads, aiding in discussions on system architecture, customer support and marketing.

The Intellis Corporation, *Software Engineering Intern* Jun. 2014 – Sept. 2014

- Designed and developed native Android application in Java to demonstrate the mobile potential of a speaker recognition based security system.
- Developed a Python desktop application/interface for collecting data on potential system attacks.
- Parallelized Python/Py.test unit test runs resulting in 10x reduced total run time.

Projects

Reinforcement Learning for Music Generation Aug. 2018 – Present

Exploring the application of deep reinforcement learning to the task of symbolic music generation.

Lead Sheet Generation with Musically Interdependent Networks Jan. 2018 – Present

Presented as a late breaking abstract at the 3rd Conference on Computer Simulation of Musical Creativity 2018. LSTM-RNN architecture exploring the interdependence of note pitch and note duration.

Sound Happening Feb. 2018 – May 2018

Interactive musical installation in which participants play with colored balls which control musical generation.

Musical Painting Bot Feb. 2018 – May 2018

Robot designed to paint to music. Performed to an original composition at GTCMT Listening Machines 2018.

Bread Board MIDI Controller Feb. 2018 – Mar. 2018

MIDI Controller constructed from prototyping parts on a breadboard. Interfaced with Ableton Live using OSC messages passed from Max/MSP. Performed at the 2018 Guthman Musical Instrument Competition Preshow.

Georgia Tech Video Game Development Club Aug. 2017 – Present

Composed music and designed sound for multiple student developed games.