

# Thomas Benton Goodall

Los Angeles, CA

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## EDUCATION

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**University of North Carolina Asheville**

**Asheville, NC**

*B.S. Music Technology and Minor in Computer Science GPA: 3.6/4.0*

*Graduation: December 2021*

## EXPERIENCE

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### Freelance

**Remote**

*Research Engineer*

*December 2021 - Present*

- Developing a patent for an original musical synthesis algorithm with electronic music composer, Jim Moravansky.
- Developing the front and back end of the audio application in C++ using the Juce application framework.
- Researching and implementing the best DSP libraries in C++ for our project's needs.

### Picardy Learning

**Remote**

*Software Engineer Intern*

*May 2021- August 2021*

- Improved lesson rendering at the front end by updating services called to the website's database

## PAPERS

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### Harmonic Modulator Envelope Filters

*June 2020 - December 2021*

- Designed and proposed an original undergraduate research project with the computer science department.
- Funded by UNCA 2020 Summer Research Grant

## PROJECTS

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### Harmonic Modulator Envelope Filter Implementation

*June 2020 - December 2021*

- Improved the Music Technology Group's SMS-Tools repository to identify and sort 100 sinusoidal harmonics of a monophonic 82 note melody by implementing modern digital signal processing algorithms.
- Utilized advanced spectral modeling synthesis techniques to model and reproduce features of a guitar's timbre on a series of electronic virtual instruments (VSTs) in order to modify the sound of the VSTs in a way that resembles the dynamics of a physical instrument.

### Midi Arduino Controller

*June 2017 - August 2017*

- Interfaced an arduino with piezo sensors to create a percussion midi controller with latency below 5 milliseconds by creating a circuit shield and signal processing software to detect the onset of notes.

## ADDITIONAL

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- Coursework: Audio Signal Processing for Music Applications, Audio Engineering Technology I-IV, Recording Practicum I-IV, Numerical Programming, Object Oriented Programming, Electronics, Data Structures, Data Structures and Algorithms, Physics of Sound, Computer Systems
- Programming Languages: Python, Java, Javascript, Angular, NodeJS, C, C++, J
- Project Management Tools: Slack, Trello