

# Michael Tecce

## Software Developer

### Personal Information

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### Programming Languages

JavaScript

- NodeJS
- ReactJS
- jQuery

Python

HTML

CSS

Java

C++

Arduino (C++)

### Relevant Coursework

Software Engineering

Object-Oriented Programming

Computer Networks

Operating Systems

Data Structures

Computer Architecture

Theory of Computation

### Projects/Research

#### 08/2021-05/2022 **Augmented Reality Musical Pedagogical Tool**

*Independent Project advised by Dr. Christopher Tralie at Ursinus College.*

Built an augmented reality program to be used as a counterpoint music theory pedagogical tool. User navigates through printed camera tracking markers, traverses music staff.

- Uses HTML, Javascript (libraries include: jQuery, AR.js, tracking.js, THREE.js, JSANOV.js)
- Responsibilities Included: Implementing program elements, debugging, testing, coordinating desired features with client (Dr. Rosa Abrahams).
- Accomplishments Included: Implementing an AR environment, real-time audio playback, global position tracking and formatting, recording user voice and modular musical note input (1<sup>st</sup> species counterpoint).

#### 06/2020-08/2020 **Sonification Research**

*Research advised by Dr. Christopher Tralie during Summer Fellows 2020 at Ursinus College.*

Explored manipulation of time series datasets and represented results through audio.

- Used Python (Libraries include Numpy, Matplotlib, Librosa, SciKit)
- Responsibilities/Accomplishments Included: Becoming proficient in Python and Numpy, studied pre-existing sonification techniques.
- Accomplishments Include: Implemented numerous sonification algorithms, bridged music theory concepts with sonification techniques.
- Found possible usage of sinusoids to teach derivatives in Calculus.

#### 05/2019-03/2021 **Digital Guitar Channel Switching Pedal**

Designed, programmed and built a 'loop switcher' guitar pedal from scratch, powered by an Arduino Nano.

- Uses C++ (Arduino Libraries)
- Designed electrical circuit (interconnection of transistor switches, relays, and Arduino Nano).
- Created/Implemented/Debugged Arduino Program to fulfil functionality of audio channel switching seamlessly.
- Created PCB circuit layout, assembled circuit board, designed casing layout of components, assembled pedal.
- Used by multiple musicians in the Philadelphia area.

### Education

#### 08/2019-05/2022 **Ursinus College, B.Sc. Computer Science**

- Major GPA: 3.57
- GPA: 3.33
- Deans List (Fall 2019, Spring 2020, Spring 2021)
- Area of Focus: Software Engineering & Algorithms

#### 08/2017-05/2019 **University of the Arts, B.Sc. Music, Business, Entrepreneurship and Technology**

- GPA: 3.73
- Minor: Woodcraft Studies
- Area of Focus: Digital Audio Programming, Audio Electronics