

### **Embedded Development**

Developed embedded applications on ARM Cortex-M3 and Cortex-M4 architectures.  
Experience with digital audio (I2S, MIDI/UART).

### **Distributed Computing**

Construction of cloud services for audio DSP on Google Compute Engine. Offloading of computations to GPUs.

### **Publishing**

Experience writing documents in Latex. Plot and graphics generation with MATLAB and matplotlib.

### **Programming Languages**

8 years experience: C, Python, MATLAB/Octave, MaxMSP/PureData.

3 years experience: C++, SuperCollider.

### **Operating Systems and Development Tools**

Advanced OSX and Linux user. Advanced bash and vim user. Debugging with gdb, lldb and valgrind. Version control with git. Some knowledge of awk, perl, sox and ffmpeg.

### **Natural Languages**

English

Fluent (Native speaker)

German

Expert (10 yr. experience)

French

Good (7 yr. experience)

### **Music**

Expert in traditional and modern music theory, professional score engraving, piano and guitar performance.

## **Experience**

### **Software Development & Music Technology**

#### **Yamaha Corporation**

August 2018 – December 2018

Music information retrieval and artificial intelligence research intern. Researched and implemented algorithms for piano transcription from audio recordings to MIDI data. Experience offloading algorithm runs to cloud services and GPUs.

**Technologies:** *Python, chainer, numpy, cupy, CUDA, MIDI*

#### **Adam Basanta**

April 2018

Developed software for autonomously controlling EPSON scanner software on Windows machine. Software initiated scans and performed some editing (cropping, color correction) of resulting images.

**Technologies:** *Python, pyautogui, autohotkey*

#### **Audible Reality**

August 2016 – July 2018

Developed DSP library for SoundAlive project. Designed, implemented and optimized algorithms for audio spatialization (3D sound) in C, working with audio engineer. Constructed DSP engine to run on Google Cloud Services via API using Ruby working with front-end developer. Prototypes written in Python using numpy. Realized MaxMSP object, iOS app and standalone application with in-house library and JUCE. Some use of Xcode for iOS development. Some use of Android Studio for Android development.

**Technologies:** *C, C++, MaxMSP, JUCE, Xcode, Android Studio, Intel IPP, Apple Accelerate Framework, Google Cloud Services, Python, numpy*