Education

**Pennsylvania State University Class of 2018:** B.S. Computer Science **Major GPA:** (3.89/4.00)

**Minors:** Mathematics, Music Technology

**Relevant Courses:** Data Structures & Algorithms, Systems Programming, OOP (Java), Discrete Math, Computer Organization & Design

Work Experience

**Musical Minds:** *CEO, Founder, Software Developer*   **December 2015 - Present**

* Directed 12 employees in the development of Brain-Computer Interface headphones for applications with music therapy
* Created Windows, iOS, and Android SDKs for interfacing with ASIC modules and EEG sensors through Bluetooth
* Designed reinforcement learning models to relate EEG feedback to Spotify/EchoNest API results for optimized therapy sessions
* Participated in the filming of a documentary on music therapy vs anti-psychotic drugs for dementia treatment

**Lunar Lion** - First Collegiate Lunar Lander**:** *Guidance, Navigation, and Controls Lead Engineer* **January 2016 - Present**

* Directed 65 students in the development of six software/hardware subsystems including visual guidance, flight software, ground controls, communications, modelling and controls, and systems testing
* Interfaced the craft’s health monitoring, navigational, and communication sensors with C/Python software using Arduinos and RTD controllers running Linux

**Microsoft:** *Student Partner*  **August 2015 - Present**

* Organized 6 workshops for college students on developer tools including OpenCV, Kinect, Azure, Android, Microsoft Band, etc.
* Represented Microsoft at Health Hackathons in Pittsburgh and Philadelphia and taught developers to use the Microsoft Band
* Volunteered at middle and high schools to teach programming concepts through Kinect and Minecraft programming

**Progeny Systems:** *Software Engineering Intern*  **May 2015 - August 2015**

* Programmed scraping software in Python for collection of images and associated data from Facebook
* Implemented scraping software on Amazon EC-2 instances to acquire a 3,000,000+ person dataset
* Designed a GUI in Java to represent facial feature adjacency matrices visualized using t-SNE dimensional reduction

Projects

**Lunar Lion Visual Guidance System:** *Lead Software Engineer*  **April 2015 – January 2016**

* Pioneered first 3D topographical reconstruction system to use a single camera with OpenCV in C++
* Authored an original research on the mathematics and optics involved
* Applied topographical approximation system to risk analysis algorithm for landing sequence adjustments

**Intelli-DJ:** *Team Leader and Developer*  **November 2015**

* Spearheaded research on using neural networks to identify emotions using polygraph readings
* Designed Android app with the Spotify SDK and API to use Microsoft Band 2 sensors as a modified polygraph for reinforcement learning of a user’s taste in music based on their current physical state

**Lysdexia:** *Team Leader and Developer* **April 2015**

* Lead research efforts on common treatment methods for dyslexia and other literacy impairments
* Created 4 interactive Xbox Kinect “mini-games” each designed to improve specific literacy skills

Awards and Achievements

* **Penn State Engaged Scholarship Award November 2015**
* **1st Place at HackPSU -** Intelli-DJ **November 2015**
* **Leonard Center Speech Contest for Engineers Semifinalist –** Harnessing DNA for Digital Storage **April 2015**
* **6th Place at CodePSU (ICPC Competition) -** Advanced Tier **March 2015**
* **American Math Competition Senior Champion**  **June 2014**

Software Skills

**Languages:** C/C++/C#/Objective-C, Java, Python, Swift, HTML

**Frameworks and Platforms:** Azure, AWS, .NET, Restful API’s, Accord.NET, React Native

**Environments/Tools:** Visual Studio, Anaconda, JetBrains, Xamarin Studio, XCode, Vim, Bash, Git, VirtualBox, Arduino, Raspberry Pi

**Operating Systems:** Windows, Linux, Mac, Android, iOS, Raspbian

**Algorithms:** FFT, t-SNE, CNN’s, Reinforcement Learning, Spline Interpolation, Dijkstra, Kalman/LMS Adaptive Filtering