Alex Patin

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Languages

C/C++/Obj-C, Python, Java, MATLAB, HTML, CSS, JS

Technologies

AWS, Azure, Flask (*REST*), DynamoDB, Tensorflow, OpenCV, Apache Spark, Embedded Systems *(MSP430, Arduino, RTD)*, Android/iOS, Scikit-learn

R&D Skills

FFT, DWT, Machine Learning, Collaborative Filtering, Kalman Filtering, PID Controls, Circuit Design, Image Processing

Soft-Skills

Agile/Scrum (*Axosoft/JIRA*), Grant-writing, Lean Startups, Business Development, Customer Development

Relevant Courses

Data Structures & Algorithms
Systems Programming
Discrete Math
Programming Language Concepts
Computer Org & Design
OOP (Java)

Unrelated Interests

Music (*Clarinet, Guitar, Production*), Club Tennis, Hackathons, Barista-ing, Dorm-Room Horticulture

Education

Penn State, Class of 2018: B.S. Computer Science **Major GPA:** (3.84/4.00)

Work Experience

Musical Minds LLC: *CEO, CTO* Nov 2015 - Now

- Directed a 21-person team in the creation of brainwave-sensing headphones and a wellness-based music recommendation engine
- Developed a REST API using AWS, Flask, DynamoDB, and Apache Spark for collaborative filtering-based recommendations
- Designed EEG biopotential amplifiers and signal processing/machine learning algorithms on a CC430 MCU for mental state classification
- Wireframed mobile applications and headphone designs for developers

Microsoft: *Student Partner* August 2015 - Now

- Delivered 12 tech workshops on MS developer tools for college students
- Trained with tools including Azure, MS Cognitive Services, and IoT devices
- Volunteered at high schools and middle schools through “Hour of Code”

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

- Created web-scrapers in Python to collect Facebook images for CNN training
- Deployed scrapers on EC-2 instances to acquire a 3,000,000+ image dataset
- Designed GUI in Java to show facial feature similarities, visualized using t-SNE

Projects

Lunar Lion: *Guidance, Nav, and Controls Lead Engineer* Jan – May 2016

- Directed 35 students under 5 subsystems including flight software, ground controls, modelling and controls, systems testing, and visual guidance
- Interfaced the spacecraft’s health monitoring, navigational, and communication sensors with C/C++ software using Arduinos and RTD controllers running Linux
- Coordinated integration with the power, structures, and propulsion systems to prepare the craft for its first free-flight test

Lunar Lion: *Visual Guidance Lead Engineer* April – Dec 2015

- Pioneered a monocular, topographical reconstruction system with OpenCV
- Implemented a 3D spline interpolation algorithm that leverages the parallax motion of lunar surface features
- Applied 3D reconstruction algorithm to risk analysis classification system for landing sequence adjustments

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

- Leveraged neural networks to identify emotions using the Microsoft Band 2
- Integrated Android app with MS Band and Spotify API to identify a user’s taste in music based on changes in their physical state

Lysdexia: *Team Leader and Developer* Nov 2015

- Spearheaded research on treatment methods for dyslexia in young children
- Designed 4 Xbox Kinect games in C# for improving specific literacy skills

Awards and Achievements

Launchbox Fall 2016 Cohort Graduate	Dec 2016
Distinguished Speaker, President’s Tailgate	Nov 2016
Inc. U Video Pitch Competition Winner ($2500)	Oct 2016
PennTap Learning Factory Grant Recipient ($3500)	Aug 2016
Slavin Foundation Fellow	July 2016
Erickson Grant and Whitman Endowment Recipient ($5000)	April 2016
1st Place at HackPSU	Nov 2015
Penn State Engaged Scholarship Award	Nov 2015
Leonard Center Speech Contest for Engineers Semifinalist	April 2015