

# Alex Patin

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## LANGUAGES

Python • C • C++ • C# • Java  
R • HTML/CSS • JS • Obj-C

## SOFTWARE TOOLS

AWS • Azure • Git • Apache  
Spark • ElasticSearch  
TensorFlow • Scikit-learn  
OpenCV • SQL/NoSQL  
Python/JS web-frameworks

## EXPERTISE

PaaS • Signal Processing  
Machine Learning • Blockchain  
Natural Language Processing  
Control Systems • Circuit Design  
Image Processing • Embedded  
Systems • Web/Mobile  
Development

## SOFT SKILLS

Agile Methodology • Scrum Tools  
(JIRA) • Slack • Grant Writing  
Lean Startups • Business Model  
Creation

## RELEVANT COURSES

Data Structures & Algorithms  
Artificial Intelligence • Computer  
Vision • Systems Programming  
Discrete Math • Programming  
Language Concepts • Computer  
Org & Design

## OTHER STUFF

Music (Clarinet, Guitar,  
Production) • Club Tennis  
Hackathons • Barista-ing  
Dorm-room Horticulture

## EDUCATION

**Penn State University Class of 2018: B.S. Computer Science** Major GPA: (3.72/4.00)

## PROFESSIONAL EXPERIENCE

**Musical Minds: Founder, CEO**

Nov 2015 - Now

- Directed 20 employees in the creation of a music-for-wellness recommendation engine powered by proprietary brainwave-sensing headphones
- Developed a Python REST API using AWS ElasticBeanstalk, AWS Cognito, Sanic, DynamoDB, and Apache Spark for collaborative filtering-based music recommendations
- Designed EEG biopotential amplifiers using Multisim and developed a DWT/SVM mental state classifier using C++/Tensorflow embedded on a TI-CC430 MCU
- Garnered \$21,000 in non-equity financing through several grants, competitions, and awards

**Microsoft: Student Partner to Penn State**

Aug 2015 - Now

- Organized 13 tech workshops on MS developer tools for college students
- Mastered tools including Azure, MS Cognitive Services, Windows IoT toolkits, etc
- Volunteered at public schools through "Hour of Code" to teach young students how to code

**Optum: Software Development Intern**

May - Aug 2017

- Developed a natural language understanding API and integrated it with complex internal business tools to simplify navigation using Flask, RASA, SPARQL, and ElasticSearch
- Built an AngularJS UI for centralization of UnitedHealth patient information between doctors
- Collaborated on Amazon Alexa skills to enhance assisted living and memory care units

**Progeny Systems: Software Development Intern**

May - Aug 2015

- Created Selenium web-scrappers in Python to collect Facebook images for CNN training
- Deployed concurrent scraper images to AWS EC2 instances to acquire 3,000,000+ images
- Designed Java GUI to show facial similarities, visualized using t-SNE

## PROJECTS AND CONSULTING

**Charity Labs: Product Development Consultant**

Jun 2017 - Now

- Built web app for online, charity-specific, 50/50 auctions using Django, Stripe, and Heroku
- Raised over \$25,000 for the Against Malaria Foundation during beta tests

**Lunar Lion: Guidance, Navigation, and Controls Lead Engineer**

Apr 2015 - Jan 2016

- Directed 35 students in the development of five software/hardware subsystems including flight software, ground controls, modelling and controls, systems testing, and visual guidance
- Interfaced the craft's health monitoring, navigational, and communication sensors with C/C++/Python software using Arduino and RTD microcontrollers
- Prototyped an Arduino and C#/WPF Ground Control Station for command transmissions
- Implemented a monocular, spline interpolation algorithm leveraging parallax motion of lunar surface features for surface reconstruction and landing sequence adjustment using OpenCV

## AWARDS AND ACHIEVEMENTS

**Slavin Family Foundation Fellow**

July 2016 - Now

**WPSU's 'The Investment' Finalist**

April 2017

**Launchbox Cohort Graduate**

Dec 2016

**Inc. U Video Pitch Competition Winner (\$2500)**

Oct 2016

**PennTap Learning Factory Grant Recipient (\$3500)**

Aug 2016

**Erickson Grant and Whitman Endowment Recipient (\$5000)**

June 2016

**1st Place at HackPSU**

Nov 2015

**Penn State Engaged Scholarship Award**

Nov 2015