

# Brendan Richards

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## SUMMARY

Recent graduate with a diverse technical background. Currently looking for a software engineering or data science position where I can grow my skill set and contribute to solving interesting problems.

## PROJECTS

### ORIGINAL MUSIC GENERATION USING MACHINE LEARNING | Summer 2020

- Developed a program to assist musicians in writing music by predicting musical note sequences
- Wrote a web scraper with the Scrapy Python library to collect over 20,000 digital music (midi) files for use as a training set
- Utilized TensorFlow and an LSTM recurrent neural network architecture
- Developed an alternative approach with a Genetic Algorithm

### AMAZON REVIEW SENTIMENT ANALYSIS | Spring 2020

- Cleaned & processed text data for over 1 million Amazon product reviews
- Trained several classification and regression models to predict whether text had positive, neutral, or negative sentiment using Python and sklearn
- Achieved 71% validation accuracy with ensemble methods

## EXPERIENCE

### UNIVERSITY OF MARYLAND, BALTIMORE COUNTY |

#### TEACHING ASSISTANT

August 2018 – Present | Baltimore, MD

- Taught electronics, optics, and mechanics labs
- Graded lab work and exams for undergraduate students
- Held individual and group instruction sessions with students

### SIMULATION, THEORY AND ENGINEERING OF ADVANCED MATERIALS LABORATORY | GRADUATE

#### RESEARCHER

July 2019 – August 2019 | Baltimore, MD

- Applied genetic algorithms and neural networks to novel 2D material simulation using python scientific computing libraries

### XCEL ENERGY | SOFTWARE DEVELOPER

May 2017 – Nov 2017 | Denver, CO

- Designed and developed a complete web application for internal use with a customizable user interface using Javascript and JQuery
- Iteratively prototyped application while gathering requirements from users
- Stored and retrieved application and user data from a SQL database in a Java backend

## EDUCATION

### UNIVERSITY OF MARYLAND, BALTIMORE COUNTY

MS IN PHYSICS

May 2020 | Baltimore, MD

Cum. GPA: 3.3 / 4.0

### METROPOLITAN STATE UNIVERSITY OF DENVER

BS IN COMPUTER SCIENCE, PHYSICS;

MINOR IN MATHEMATICS

December 2017 | Denver, CO

Cum. GPA: 3.6 / 4.0

## SKILLS

### PROGRAMMING LANGUAGES

Python • Java • JavaScript • C/C++ •  
Mathematica • SQL

### TECHNOLOGY

Git/Github • React • TensorFlow • Keras  
UNIX • Natural Language Processing •  
Web Development  
Neural Networks • Genetic Algorithms  
• Classification Algorithms

## COURSEWORK

Data Science • Algorithm Analysis •  
Operating Systems • Bio-Inspired  
Computing • Computer Graphics •  
Probability and Statistics • Linear Algebra •  
Calculus • Software Engineering Principles

## CERTIFICATIONS

### COURSERA COURSES COMPLETED

Neural Networks and Deep Learning •  
Improving Deep Neural Networks:  
parameter tuning, Regularization and  
Optimization • Structuring Machine  
Learning Projects

## OTHER INTERESTS

Hiking • Camping • Traveling • Cycling •  
Playing Guitar