

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
- Collaborated with other researchers on original publications

XCEL ENERGY | INTERN

May 2017 – Nov 2017 | Denver, CO

- Designed and developed a complete web application for internal use with a customizable user interface using 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 • HTML • CSS

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