Alexander McWilliams

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EDUCATION

Bentley University, Waltham, MA

- <u>Major:</u> Data Analytics
- <u>Key Coursework:</u> Regression Analysis, Data Science, Data Mining, Generalized Linear Models & Survival Analysis, Design of Experiments, Intermediate Applied Statistics, Database Management Systems
- <u>Honors:</u> Bentley University Honors Program (10% of Student Body), President's List (3.7+ GPA), Dean's List (3.5+ GPA)

Software & Programming Languages

- Python (NumPy, Pandas, Plotly, CV2), SQL, R (ggplot, tidyverse), HTML/CSS, Dash, Hugo, Netlify, Excel

PROFESSIONAL EXPERIENCE

Massachusetts Institute of Technology, Cambridge, MA   Feb 2020 – Present
MIMIC-IV Research Assistant

- Utilized <u>Google BigQuery</u> to analyze MIMIC-IV, a relational database containing comprehensive information for real hospital stays of patients admitted to a tertiary academic medical center in Boston, MA, USA.

Bentley University, Waltham, MA   Sept 2020 - Present
Natural Language Processing (NLP) Researcher

- Developed a comprehensive research project focused on text analysis & Natural Language Processing
- Analyzed reddit.com comment data with R-Studio packages <u>textmatch</u> and <u>quanteda</u> to gauge sentiment based on presumed user gender. Attempting to predict upvote/downvote ratio using summary statistics.

INDEPENDENT RESEARCH & PROJECTS

Front-End Developer/Author @ https://xndrmcw.netlify.app/

- Designed a clean and engaging portfolio website using <u>Hugo</u>, a markdown-based website framework.
- Deployed website updates with the help of <u>GitHub</u>, <u>Netlify</u>, and <u>Atom.</u>
- Authored technical yet accessible posts about the intricacies of my ongoing programming projects, as detailed below.

TensorFlow Fashion-MNIST Analysis & Explanation

- Constructed a basic multi-layered <u>neural net</u> to analyze the famous Fashion-MNIST dataset, attaining, with ten epochs of training, model accuracy of 90.37% and validation data accuracy of 88%.
- Annotated, step-by-step, the Python code used to construct neural net.

Data Visualization Collection

- Constructed a Fitbit-Heartrate based visualization with <u>numpy</u> and <u>plotly</u>, a data viz. focused Python Package. Employed Neil Ricci's Pulse-Watch web-tool to export heartrate data as a malleable csv file.
- Designed a thematic visualization based on Curb Your Enthusiasm's IMDB ratings using RStudio's <u>tidyverse</u> and <u>grid</u> packages. Employed a Python webscraper & <u>NumPy</u> to obtain + transform CSV files.

LEADERSHIP/EXTRACURRICULAR EXPERIENCE

Resident Assistant - Bentley University   (2019-2020)

- Connected with ~30 residents on an interpersonal level, facilitating a healthy and engaging floor environment while upholding university practices and safety standards.

Tour Guide - Bentley University   (2018-2019)

- Showcased Bentley University while practicing oral and presentation skills in front of groups of 20-30 perspective students and parents.