

Alexander McWilliams

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PROFESSIONAL EXPERIENCE

Massachusetts Institute of Technology, Cambridge, MA

Feb 2020 – Present

MIMIC-IV Research Assistant

- Utilized Google BigQuery on 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.
- Working closely with Bentley University Professor Reagan Mozer, learned to clean and pre-process health requisite data using RStudio, which was then used for blood transfusion survival/medical study analysis.

Bentley University, Waltham, MA

Sept 2020 - Present

Natural Language Processing (NLP) Researcher

- Developed a comprehensive Honors Capstone project focused on text analysis & Natural Language Processing.
- Analyzed reddit.com/r/movies comment data using R-Studio - developed an annotated guide for beginners. Full capstone report can be found on my website.

INDEPENDENT RESEARCH & PROJECTS

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

- Designed a clean and engaging portfolio website using Hugo, a markdown-based website framework.
- Deployed website updates with the help of GitHub, Netlify, and Atom.
- 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 neural net 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 numpy and plotly, 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 tidyverse and grid packages. Employed a Python webscraper & NumPy to obtain + transform CSV files.

EDUCATION

Bentley University, Waltham, MA

- Degree: Data Analytics, B.S. (3.55 GPA)
- Key Coursework: Regression Analysis, Data Science, Data Mining, Generalized Linear Models & Survival Analysis, Design of Experiments, Intermediate Applied Statistics, Database Management Systems
- Honors: Bentley University Honors Program (Top 10% of Incoming Student Body), President's List (3.7+ GPA), Dean's List (3.5+ GPA)

Software & Programming Languages

- Python (NumPy, Pandas, Plotly, TensorFlow), RStudio (ggplot, quanteda, tidyverse), SQL, HTML/CSS, Dash, GitHub, Hugo, Excel

LEADERSHIP/EXTRACURRICULAR EXPERIENCE

Resident Assistant & Tour Guide- 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.