Jacob R. Williams *ML Engineer proficient in Healthcare Analytics & Recommendation Systems*

(703) 626-6238 | https://jrwilliams6238.github.io | jrwilliams6238@gmail.com | www.linkedin.com/in/jacobwilliams314

Education

Georgia Institute of Technology **B.S. in Computer Science / Aug. 2019 — May 2023**

- *Specializations: Artificial Intelligence and Theoretical CS*
- *3.72 GPA, Highest Honors, Faculty Honors, Dean's List*

Morehead State University, Residential Early College **Aug. 2017 — May 2019**

- 3.98 GPA, *Presidential Scholar, National Merit Scholar*

Tianjin Normal University, Study Abroad, Tianjin, China **Summer 2018**

Employment

Machine Learning Engineer Intern **Institute for People and Technology / Summer 2022**

- Analyzed sensitive student records, modeling the relationship between personal data, student-staff emails, and GPA
- Used **PyTorch** and **Pandas** for natural language processing (**NLP**), enabling sentiment analysis of student-staff emails
- Utilized **Seaborn** to create compact visualizations of individual students, efficiently displaying 9 variables across time
- Used **R** to measure the statistical significance of apparent trends, detecting bias in GPA across zip code and gender

Machine Learning Engineer **AI-CARING / Jan. 2021 — Sep. 2021**

- Led the analysis of "Aware Homes," studying dozens of patients through hundreds of sensors in their own houses
- Outperformed faulty medicine tracker by utilizing ambient sensors (vibration, light, doors) in a deep recurrent model
- Managed data from thousands of unique sensors, creating a pipeline from **AWS** to **PyTorch** to facilitate ML analysis

Data Scientist, SURF Intern **Cincinnati Children's Hospital Medical Center / Summer 2020**

- Developed tools for the **NLP** of COVID-19 abstracts, classifying articles for meta-analysis at the start of the pandemic
- Designed a **TensorFlow**-based model for the classification of articles given tf-idf n-gram representations of abstracts

Research at Georgia Tech

Recommend.US, *a Create-X Startup* **2022 — 2023**

- Invented a recommender system where users add/subtract/average books and movies to receive novel suggestions
- Scraped the text of every documented movie's Wikipedia article, creating an embedded representation of each film
- Rapidly prototyped minimum viable product using **Figma** and **React**. Coordinated efforts with **Agile**, **Colab**, and **Git**

Analysis of Aware Homes **2020 — 2021**

- Utilized **Pandas** and **TensorFlow** to create deep recurrent models capable of labeling activity from live sensor data
- Developed clustering methods for unsupervised activity detection, bootstrapping the training of supervised models

3D Printed Logic Gates **2020**

- Invented a 3D-printed gear logic system. Prototyped with **CircuitSim**, simulated using **C++**, and modeled in **AutoCAD**

Engagement

Machine Learning Club, *"The Agency"* **2021 — 2023**

- Independent exploratory project using **TensorFlow** to create models for the **computer vision** dataset Fashion-MNIST
- Investigated parallel auto-encoders as a means of forcing distributed representations in the latent space of models

Alpha Sigma Phi Fraternity, *Zeta Eta Chapter* **2019 — 2022**

- Twice elected Brotherhood Director and House Manager, utilizing **Microsoft Excel** to manage over $25,000 in funds

Founder of FIRST Robotics team Craft Robotics **2019**

- Acquired $26,000 in funds from *NASA* and the Craft Academy. Led construction of 100+ pound robot for competition

Skills

Computer Science

- Skills: deep learning, reinforcement learning, computer vision, NLP, scraping, optimization, data analysis, prototyping
- Proficiencies: Python (PyTorch, TensorFlow, Pandas, Seaborn), Java, C++, R, SQL, AWS, Excel, Figma, React, CAD, Git

Relevant Coursework

- Master's Level Courses: *Game AI, Deep Learning, Knowledge-Based Artificial Intelligence, Machine Learning*
- Undergraduate: *Advanced Algorithms, Automata & Complexity, Combinatorics, Cognitive Science, Space Systems*