Jacob R. Williams *Software Engineer experienced with Machine Learning and Theoretical CS*

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Education

Georgia Institute of Technology, Atlanta, Georgia, **B.S. in Computer Science** **08/21/2019—05/02/2023**

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

Morehead State University, Morehead, Kentucky, Residential Early College **08/14/2017—05/10/2019**

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

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

Employment

Machine Learning Engineer Intern **05/02/2022—08/21/2022**
Georgia Tech Research Institute (IPAT) 40 Hours per week

- Solely responsible for the analysis of student records, modeling the relationship of sensitive personal data and GPA
- Used **PyTorch** and **Pandas** for natural language processing (**NLP**), enabling sentiment analysis of student-staff emails
- Utilized **Seaborn** and **R** to create compact visualizations of statistically significant trends, documenting bias in GPA

Machine Learning Engineer **01/01/2021—09/01/2021**
Georgia Tech Research Institute (AI-CARING) 40 Hours per week

- 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 **05/02/2020—08/21/2020**
Cincinnati Children's Hospital Medical Center 40 Hours per week

- 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 recommendation platform where users add/subtract/average books and movies to receive suggestions
- Scraped the text of every documented movie's Wikipedia article, creating an embedded representation of each film
- Rapidly prototyped a minimum viable product using **Figma** and **React**. Coordinated team using **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*