JACOB RENN

1261 Pekin Road ⋄ Pasadena, MD 21122
(301)514-5057 ⋄ jwrenn4@outlook.com

OBJECTIVE

Accomplished data science leader, researcher, and startup executive with a proven track record of building and deploying cutting-edge AI solutions and ML-related technologies. Dedicated to solving complex, real-world challenges in both consumer and enterprise applications for public and private sector clients. Seeking a strategic role where I can leverage my expertise to drive innovation, foster strong technical teams, and make a significant impact in advancing and using AI technologies.

SECURITY CLEARANCE

Top Secret/SCI with Full-Scope Polygraph (Current, Inactive)

EXPERIENCE

Chief Technologist, AI Squared, Inc. (Cofounder) ***September 2020 - Present***

Overview

- **Served as Chief Technologist and Head of Data Science and ML/AI Research at an AI startup, overseeing and contributing to company technology development, including internal product development and across a wide variety of private and public sector customer projects**

Accomplishments

- **Designed and led development of company core ML/AI integration technology and platform, leading to the company raising Series Seed funding of $5MM at a $25MM+ post-money valuation**
- **Led a diverse engineering team, fostering relationships with partners and customers while driving the technical roadmap**
- **Provided technical leadership across business units while also simultaneously building and maintaining company open source technologies, including the company's Python SDK for building low-code AI/ML integrations and a Python package for developing sparse neural networks that can perform multiple tasks across multiple data domains utilizing the TensorFlow and PyTorch frameworks**
- **Served as primary AI/ML liaison for the company, leading to partnerships with companies and organizations such as the National Security Agency, Intel, Databricks, the Department of Defense, and Microsoft**
- **Quickly learned and built prototypes and solutions with multiple technologies, including generative AI services and other LLM technologies, to facilitate customer engagements and adoption of company products**
- **Developed and released DLite, a family of lightweight LLM models which are tuned for chat-based conversations with end users, which have been downloaded thousands of times**
- **Built multiple ML/AI models for customers, including tree-based models, neural networks, anomaly detection algorithms, and LLMs, with a focus on transparency and responsible use, increasing company revenue and driving technology adoption**
- **Spoke at multiple conferences across a variety of different subjects, including integrating LLMs into existing workflows, the potential for AI impact in the metaverse, and how to use AI Squared's technology to integrate deep learning models into browser-based workflows**

Adjunct Faculty, Capitol Technology University *May 2022 - Present*

Overview:

- **Serve as adjunct faculty for Doctoral Programs and the Department of Computer Science, including teaching undergraduate courses, sitting in as external examiner for student dissertation defenses, and advising doctoral students in their research**

Duties and Accomplishments:

- **To date, have served as external examiner for three PhD students in their dissertation defenses, utilizing technical and academic expertise to review student work and provide input regarding completion of program goals**
- **Taught CS-150: Programming in C to undergraduate students across a range of majors and prior programming experience. Teacher Overall Rating: 4.6/5**

Delivery Data Scientist, Microsoft Corporation *May 2020 - November 2021*

Overview:

- **As part of the initial Microsoft Federal team, provided data science expertise across a range of domains and application areas as a consultant and technical liaison between Microsoft and its federal customers, particularly those within the Intelligence Community**

Duties and Accomplishments:

- **Served as the sole data scientist at Microsoft dedicated to Intelligence Community customers and helping drive customer adoption and effective utilization of Microsoft Azure**
- **Utilized deep learning expertise to create, train, and deploy machine learning models into proof-of-concept tool which was showcased to multiple government agencies**
- **Assessed government requirements to help determine overall bid price and compile proposal materials on multiple contract opportunities for various government organizations**
- **Provided support to prime government contractor seeking to modernize existing system architecture and reliability by exploring existing system architecture and identifying bottlenecks in data processing**
- **Worked as part of a collaborative team with government personnel and other company consultants to develop advanced cloud based analytics to secure customer enterprise environment using Azure cloud resources**

Data Scientist, WaveStrike, LLC *June 2019 - April 2020*

Overview:

- **Provided machine learning, analytic, and programming expertise in support of federal government video, image, speech, and text analytics researchers within the Intelligence Community**

Duties and Accomplishments:

- **Worked with company leadership to expand business operations by submitting proposals to NSF and DoD customers to develop next-generation interpretable AI technologies**
- **Developed multipurpose software to facilitate end-to-end text experiments, including extracting and preprocessing text, training models with user-specified hyperparameters, aligning hypothesis and reference data, and testing model performance by multiple scoring metrics**
- **Worked collaboratively to design and implement a system to iteratively obtain data from various sources and perform updates to BERT models by fine-tuning on this data utilizing a high performance computing environment**
- **Developed application allowing researchers and developers to access and process streaming text data at ingest speeds on the order of 100s of documents per second**
- **Worked with a small team of researchers, software engineers, and data scientists to improve neural network model performance on few shot text classification tasks**

Data Scientist, United States Department of Defense *July 2018 - June 2019*

Overview:

- **Employed a variety of computer science, mathematics, and software engineering skills to derive strategies and tools for extracting meaning from datasets of varying size and organizational structure**

Duties and Accomplishments:

- **Researched and applied a variety of natural language processing techniques, including topic modeling, automatic stopword detection, and document similarity for retrieval purposes**
- **Developed robust image classification models using data augmentation and image processing techniques**
- **Engineered data pipelines and automation workflows to significantly reduce man-hours spent on repeated tasks**
- **Created customized, installable Python packages to address project needs**
- **Revamped the onboarding and initial training process for new data scientists**
- **Interviewed external applicants applying to the data scientist position**

Research Assistant, University of Maryland, College Park *May 2018 - December 2018*

Overview:

- **Researched machine learning algorithms and developed prototype of an improved decision tree algorithm with capabilities of identifying more complex relationships than existing technologies.**

Duties and Accomplishments:

- **Performed academic literature review of decision tree algorithms to explore innovations that have been made with the technologies**
- **Developed conceptual prototype of a new decision tree based algorithm, including mathematical theory surrounding the model**
- **Built and tested software prototype of the new decision tree algorithm on a variety of datasets, comparing results of the new model to those of existing algorithms**
- **Compiled all research and work into a paper which was published internally at the University**

Teaching Assistant, University of Maryland, College Park *August 2017 - May 2018*

Overview:

- **Served as a teaching assistant in the Mathematics Department at the University of Maryland**

Duties and Accomplishments:

- **Taught four classes over the course of my employment in the department**
- **Graded student tests, quizzes, and other assignments**
- **Ran discussion sections and lectures**
- **Held office hours**

EDUCATION

Doctor of Philosophy in Technology, Capitol Technology University *2022*

- **Research Area: Explainable Artificial Intelligence**
- **Dissertation Title: *Linear Regression Feature Engineering in Classification Tree Learning***

Master of Science in Business Analytics, University of Maryland *2018*

- **4.0 GPA**

Bachelor of Science in Mathematics, University of Maryland *2017*

- **3.77 GPA, Honors College Citation**