Mark Fajet

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SOFTWARE DEVELOPMENT ENGINEER

Innovative and results-driven Software Development Engineer with a strong foundation in machine learning and data science, holding a M.S. in Computer Science. Proven expertise in developing scalable, high-performance applications and ML models at leading tech companies including Meta and Amazon. Skilled in Python, Java, C, and a wide array of ML frameworks and data tools. Demonstrated success in optimizing data pipelines, enhancing feature selection, building privacy-safe systems, and mentoring team members.

KEY SKILLS

Programming Languages: Python | Java | C | MATLAB | CUDA | F# | Haskell
Machine Learning: Deep learning | Unsupervised learning | Supervised learning | Reinforcement Learning | Natural Language Processing
Frameworks and Libraries: Tensor flow | KERAS | SciPy | scikit-learn | MLXtend | MXNet | NLTK | WordNet | Glove | NumPy | Pandas | Jupiter | Matplotlib | Numba | pytest | mock | Jest | Cypress | Flask | SQL | Node.js | HTML | CSS | JavaScript | React | Docker | OpenMP | MPI

EXPERIENCE

META, Remote from Miami, FL **Feb 2022 - April 2025**
Software Development Engineer, Machine Learning
Created and improved machine learning models for ranking ads for users using anonymized and aggregated (A&A) data.

- Developed automated guardrail pipeline to monitor and ensure output of privacy-safe error metric aligns with output of original error metrics which gave developers the confidence to use this metric in their model development leading to an increase in models proposed using A&A data in the error calculations.
- Implemented and tested use of A&A error metric in feature selection process to find optimal set of features for ML models that train on A&A data decreasing the normalized entropy metric of one model by 1.4%.
- Utilized feature correlation algorithms to further optimize input feature sets allowing for an additional 0.2% reduction of error metrics.
- Collaborated with infrastructure teams to create datasets with new features or modified feature values to achieve better performance on trained models of around 0.5-1% reduction of error metrics for multiple models.

AMAZON, AWS ELASTIC FILE SYSTEM | Remote from Miami, FL, Boston, MA **June 2018 - Feb 2022**
Software Development Engineer 2, July 2020 - Feb 2022
Improved the data monitoring and analysis capabilities of the AWS EFS team and reported on customer usage trends to assist developers and product managers.

- Designed and implemented monitoring and alarming solutions for ETL processes using AWS Glue, Amazon Athena, AWS Batch, and AWS Lambda.
- Performed data analysis on large datasets of customer data/metadata using Pandas and NumPy in order to provide a better understanding of how AWS customers are using the service to be used for business decisions.
- Defined and built statistical models for anomaly detection in EFS metrics so that on call developers can, at a glance, tell what metrics are falling outside of the normal range.
- Built a recommender system using MLXtend for internal operations portal to give developers a better chance at finding the relevant documentation needed for the project or issue they are working on.
- Participated in candidate interview loops.

Software Development Engineer 1, June 2018 - July 2020
Contributed to and oversaw the development of internal tooling for EFS developers in the form of a web application as well as numerous console based tools and scripts.

- Implemented a web application using Flask and React for EFS operators to more easily triage issues, read runbacks, and view real-time metrics with 130 daily users.

- Integrated a scalable search engine for internal operation documents using Amazon Elasticsearch Service, Amazon S3, AWS Lambda, and AWS CDK promoting faster development, easier discovery of existing internal knowledge, and an improved oncall experience.
- Added multithreading, multiprocessing, and caching to a variety of existing tools which drastically improved performance by up to 94%.
- Improved test coverage and team practices with Jest, pytest, and Cypress.
- Mentored interns and new hires during on-boarding and project completion.

MATHWORKS, Natick, MA **May 2017 - August 2017**

Engineering Development Group Intern

Provided detailed analyses of the performance of MATLAB on various systems for comparison against competitors and internal direction setting.

- Carried out deep learning benchmarking in MATLAB, Tensorflow, Kera, and MXNet across multiple systems and recorded the results to inform senior engineers how MATLAB operating times compare to competitors and what areas need the most improvement.
- Conducted exploratory data analysis in MATLAB employing linear regression, K-Nearest Neighbors, decision trees, and SVM to diagnose long startup times and find correlations between CPU, memory size, operating system, and startup times.

FLORIDA INTERNATIONAL UNIVERSITY, Miami, FL **September 2015 - May 2018**

Web Developer

Built and managed 4 different websites using technologies such as Node, PostgreSQL, React, PHP, Angular, and Firebase

Learning Assistant

Assisted classes of 40 students with programming projects for courses that focused on assembly language, registers, binary, logic, circuits, caching, paging, multithreading, and GPU programming

EDUCATION

Master of Science, M.S., in Computer Science, **GPA: 4.0/4.0**
Florida International University
Bachelor of Science, B.S., in Mathematical Sciences GPA: 3.95/4.0
Florida International University
Bachelor of Science, B.S., in Computer Science, GPA: 3.95/4.0
Florida International University

PROJECTS

Codenames DQN

- Created an OpenAI Gym environment of the board game Codenames to simulate the game play utilizing Glove word vectors
- Trained a Deep Q-network with the goal of creating a model that can play and win the boardgame, consequently learning the multi-modal definitions of English words

Neural Gonna Give You Up (https://github.com/mfajet/Neural-Gonna-Give-You-Up)

- Developed encoder-decoder recurrent neural network using Kera's LSTM and dense layers to process MIDI song files to make them sound more like Never Gonna Give You Up by Rick Astley

AWARDS AND CERTIFICATIONS

- 14 Machine Learning certifications through Coursera listed on LinkedIn Profile
- Best Artificial Intelligence and Machine Learning Hack, UHack 2017 https://devpost.com/software/neural-gonna-give-you-up
- Outstanding Graduate Award in Computer Science Florida International University, May 2018
- FIU Ambassador Scholarship, Bright Futures Scholarship, FIU SGA STEM Scholarship