Brandon Fujii

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Education

Springboard — Remote
6-month intensive course in data science, machine learning, Python, and SQL — *Mar. 2021 – Sep. 2021*

Northwestern University — Evanston, IL
MS in Computer Science — *2018 – 2019*

Northwestern University — Evanston, IL
BA in Computer Science — *2014 – 2018*

Technical Skills

Languages: Python, Go, Java, Julia, JavaScript, Ruby On Rails, Node.JS, SQL
Cloud: EC2, DynamoDB, CloudFormation, SQS, SNS, Apache Spark, Hadoop, Hive, Impala, Paperspace, Databricks
Data Science: data wrangling, feature engineering, exploratory data analysis, data modeling, hyperparameter optimization, data storytelling, supervised learning, unsupervised learning, reinforcement learning, hypothesis testing
Libraries: ReactJS, Pandas, NumPy, Scikit Learn, TensorFlow, Optuna, Matplotlib

Experience

Software Engineer II — Sep. 2019 – May 2021
Amazon Web Services — *Seattle, WA*

- Worked with a team that automatically disseminates security and kernel patches for over 2 million Amazon hosts

– *Heterogeneous Fleets Project*

- Tasked with an organization-wide goal to accommodate two types of EC2 instances in one fleet
- Created a Go CodeDeploy script that allowed customers to deploy two Amazon Machine Images (AMI) through their continuous deployment pipelines
- Granted customers the flexibility to provision different operating systems and architectures without having to maintain multiple pipelines
- Allowed several teams to migrate to more efficient hardware, saving over $200 million in hardware costs

– *Custom Hash Host Selection Project*

- Tasked with preventing hosts with the same data replicas from being patched and rebooted simultaneously
- Created a new host selection algorithm in Java that prevents similar hosts from being patched together while also maximizing host up-time
- Improved the reliability of AWS data storage during security patching
- Reduced the time to patch a large AWS service's hosts by about 30%

Research Assistant — Jun. 2019 – Sep. 2019
Northwestern University (LCAN Lab) — *Evanston, IL*

- Tasked to create a method to automatically detect early Parkinson's disease (PD) in patients through speech features
- Engineered features based on linguistic errors patients produced during speech tasks
- Used a weighted K-nearest neighbor model that classified control and PD patients with more than 88% accuracy
- Presented poster at the World Congress on Parkinson's Disease and Related Disorders

Software Engineering Intern — Jun. 2018 – Sep. 2018
Amazon Web Services — *Seattle, WA*

- Worked with a security patching team to improve the usability of an internal host-patching tool
- Created an web interface where customers can visualize and interact with their patching pipelines
- Used Ruby on Rails to create an entirely new website with a webpage for creating a patching pipeline, a view to start and cancel a workflow to patch their pipeline's hosts, and an option to delete vestigial pipelines
- Improved developer productivity and increased website usage by over 50%

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Software Engineering Intern Jun. 2017 – Sep. 2017
Tumblr *New York City, NY*

- Worked with the product engineering team
- Tasked with developing a more efficient way to share to Tumblr for power users
- Using JavaScript, PHP, and MySQL, developed a new browser share tool, which allows users to post third-party media to the site without directly visiting
- Observed an average increase of 20% in installations across Chrome and Firefox extensions

Teaching Assistant and Peer Mentor Sep. 2014 – Jun. 2019
Northwestern University *Evanston, IL*

- Peer-mentored various courses throughout my undergraduate tenure, including Introduction to Machine Learning, Introduction to Database Systems, Introduction to Artificial Intelligence, and Computer Programming in Racket
- Teaching assistant for a software engineering course called NUvention Web and Media

Projects

Predicting Diabetic Early Readmission | *Python, Scikit Learn, Optuna* Apr. 2021 – May 2021

- Given the costliness of unplanned early hospital readmission, sought to develop an accurate method of identifying diabetic patients at risk of readmitting early
- Conducted exploratory data analysis, feature engineering, model selection, and hyperparameter optimization to train a random forest model to classify a patient as at risk for early readmission, based on hospital data
- Identified 62% of non-early readmission patients and 61% of early readmission patients, about a 20% improvement from traditional assessment tools

Autonomous Car Racing Agent | *Python, TensorFlow, OpenAI Gym* Jun. 2021 – Aug. 2021

- Attempted to maneuver a virtual car around an in-game track without hard-coded business logic, as part of OpenAI's car racing Gym environment
- Trained a deep Q-network to estimate the values of performing steering, acceleration, and braking actions for a given in-game frame and inform an agent's decision-making
- The resulting agent successfully navigates the entirety of the track, achieving an average of 832 out of a possible 1000 reward points over 100 trials

Conferences and Publications

World Congress on Parkinson's Disease and Related Disorders Montreal, QC
Northwestern University *Jul. 2019*

- Presented poster Promise of Automation: Development and Preliminary testing of a Language-based Machine Learning Algorithm in PD by B. Fujii, R. Richter, A. Roberts