Isaac Buitrago

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Education

The University of Texas at Austin — Austin, TX
M.S. Computer Science — *Aug. 2019 – May 2021*
Courses: Deep Learning, Machine Learning, NLP, Stats Models for Big Data

The University of Texas at San Antonio — San Antonio, TX
B.S. Computer Science, Concentration in Software Engineering & Data Science — *Aug. 2016 – May 2019*
Courses: Software Engineering, Artificial Intelligence, Database Systems, Data Science

Technical Skills

Languages: Python, Java, C, Scala(familiar), SQL
Libraries: PyTorch, Scikit Learn, Pandas, Numpy, Matplotlib
Developer Tools: Git, Docker, AWS, GPU's, Jupyter-notebook, Map-Reduce(familiar)
Operating Systems: Ubuntu 16.04, MacOS

Experience

Graduate Research Assistant — Jun. 2020 – Present
Applied Research Labratories — *Austin, TX*
- Implemented unsupervised deep learning model from research paper for classification of ultrasound images.
- Implemented custom evaluation metrics in Python to visualize model performance with matplotlib.
- Organized, cleaned, and analyzed 64GB of geospatial data in HDF5 format to correctly feed the network.
- Initiated documentation of ML development processes within the group to unify project information.

Graduate Research Assistant — Sep. 2019 – Jan. 2020
UT Austin, Learning Agents Research Group — *Austin, TX*
- Trained autonomous vehicle to reduce traffic congestion using a Reinforcement Learning algorithm (PPO).
- Created mutli-processing program in Python to evaluate a learned policy over 30 runs.
- Designed the states, actions, and rewards for a Reinforcement Learning system and implemented it in Python.
- Setup software stack to perform Deep Reinforcement Learning on an NVIDIA GTX 1080 GPU.

Software Engineer Intern — Feb. 2019 – Aug. 2019
PlusOne Robotics, perception team — *San Antonio, TX*
- Developed front-end calibration system for PickOne using ReactJS to help customers setup their vision system.
- Developed customer facing applications using ReactJS to improve customer experience with perception software.
- Developed integration between AWS and slack to notify dev team of infrastructure failures in real time.
- Utilized the SCRUM methodology to complete feature requests in two-week sprint cycles and prioritize my tasks.

Student Analyst — Jan. 2017 – Nov. 2018
Southwest Research Institute — *San Antonio, TX*
- Developed feature in C# that filters traffic events from 12 web services and stores them in an SQL database.
- Designed and implemented 6 RDBMS table schemas for a distributed traffic management system.
- Debugged 23 issues in a 6-million-line code stack to enhance software quality and resolve client's issues.
- Improved software engineering processes to maintain the departments CMMI level 5 status.

Projects

GLM API https://github.com/sftwre/glm_api | *Python, Flask, Docker* — Sept. 2020
- Developed REST API in Flask to query a logistic regression model that predicts customer purchasing behavior.
- Created test suite using pytest to ensure API correctly consumed data and returned correct results.
- Deployed API using Docker and published image to Docker hub, $texashookem/glm\_api : latest$.

Image Compression https://github.com/sftwre/ImageCompressionNN | *PyTorch, Python, GPU* — Oct. 2019
- Implemented deep neural network in PyTorch from *Real Time Adaptive Image Compression.*
- Developed PyTorch dataloaders for Kodak PhotoCD dataset.
- Utilized data parallelism across multiple GPU's to speed up training.
- Developed training script that can configure model parameters via the command line.