

Mark Ditsworth

WORK EXPERIENCE

APR 2019 – PRESENT

Capital One

Data Engineer

– Modularized and increased reliability of automated deployments of the Elastic stack and Apache NiFi clusters.

JUL 2018 – APR 2019

Raytheon, Information & Intelligence Services

Systems Engineer

– Created a Bayesian statistical model to predict an interval of high likelihood for security clearance investigation completion. An average error of ± 5 days was observed.

JUN 2014 – JUL 2018

Renewable Energy & Vehicular Technology Lab

Graduate Research Assistant

– Coded a reinforcement learning algorithm for training a fault-tolerant microgrid controller.
– Architected and implemented cloud applications for IoT data collection and processing for real-time fault diagnostics.
– Constructed the prototype for a novel method for tolerating misalignment in wireless power transmission coils.
– Served as team captain in 2015 IFEC, designing and building a wireless EV charging system.

PROJECTS & ACTIVITY

2019 **ArXiv Paper Downloader**

Twitter bot that downloads user-tagged arXiv links posted on Twitter.

2019 **PyGA**

Python package for genetic algorithm optimization.

2019 **Vaccination Strategy Optimization**

Modeled the spread of an infection in a social network with Monte Carlo simulations to optimize a vaccination campaign.

2018 **Reddit Bot Account Detection**

Modeled Reddit comment activity as a directed network to identify bot accounts based on content agnostic features.

2017 **Intel Hacks – Unoccupied Vehicle Safety and Monitoring**

Notification of vehicle accidents while driver is absent.



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EDUCATION

2017 – 2019

M.S. Systems Engineering

UNIVERSITY OF TEXAS - DALLAS
Thesis: Modeling semiconductor degradation

2017 – 2018

Machine Learning Nanodegree

UDACITY
Capstone: Binary classification of manufacturing defects

2013 – 2017

B.S. Electrical Engineering

UNIVERSITY OF TEXAS - DALLAS
Magna Cum Laude

PUBLICATIONS

2019 **Community Detection via Katz and Eigenvector Centrality**
unsubmitted

2018 **Machine Learning based Energy Management System for grid disaster mitigation**
IET Smart Grid

2018 **A Battery Pack Reconfiguration Scheme for Improved Charge Balancing**
American Controls Conference

2015 **A magnetically enhanced wireless power transfer system for compensation of misalignment in mobile charging platforms**
IEEE Energy Conversion Congress & Exhibition

TECHNICAL SKILLS

APPLICATIONS

Network Science, Complexity, Optimization, Data Science, Probability and Statistics, Machine Learning, Systems Modeling

PROGRAMMING

Python, Julia, C, C++, Node.js, MATLAB

COMPUTING

Linux, Ansible, Docker, Elastic Stack, Kafka