

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.

PROJECTS & ACTIVITY

2019 Swamp

An OSINT Utility that discovers associated sites via Google Tracking IDs. Contributed the lifting of tracking IDs from web pages, URL verification, and pivoting to a graph-based data structure.

2019 Data Science Tool Kit

A python module for personal use to perform common data analysis functions, such as embedding, spectral analysis, etc. (In progress)

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.



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FORMAL EDUCATION

2017 – 2019

M.S. Systems Engineering

UNIVERSITY OF TEXAS - DALLAS

2017 – 2018

Machine Learning Nanodegree

UDACITY

2013 – 2017

B.S. Electrical Engineering

UNIVERSITY OF TEXAS - DALLAS

SELF-PACED COURSEWORK

Probabilistic Systems Analysis

Mathematics of Data Science

Linear Partial Differential Equations

PUBLICATIONS

2019

Community Detection via Katz and Eigenvector Centrality
currently 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 ECCE

TECHNICAL SKILLS

APPLICATIONS

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

PROGRAMMING

Python, Julia, C/C++, Matlab

COMPUTING

Linux, Ansible, Docker, Elastic Stack, Kafka