Mark Ditsworth

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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 ability to lift tracking IDs from web pages.

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.

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