

Mark Ditsworth

WORK EXPERIENCE

APR 2021 – PRESENT

Capital One – Card Technology

Senior Data Engineer

– Developed a highly-available API for managing multiple components of an autofailover solution for AWS Aurora Global.

APR 2019 – APR 2021

Capital One – Cyber Machine Learning

Data Engineer

– Supported a petabyte-scale data lake for cyber-security and network telemetry data.
– Architected and implemented an automated re-hydration service for a fleet of Elasticsearch clusters, saving 80 engineering-hours semi-monthly.

JUL 2018 – APR 2019

Raytheon – Information & Intelligence Services

Systems Engineer

– Created a Bayesian statistical model to predict an interval for security clearance investigation completion with an average error of ± 5 days.

JUN 2014 – JUL 2018

Renewable Energy & Vehicular Technology Lab

Graduate Research Assistant

– Applied an evolutionary optimization algorithm to reverse-engineer advanced silicon devices for high-fidelity numerical modeling of aging processes.
– Coded a reinforcement learning algorithm for training a fault-tolerant microgrid controller.
– Created cloud applications for IoT data collection and processing for real-time fault diagnostics.

PROJECTS & ACTIVITY

2020 **SkillsInfo**

An environment for scraping LinkedIn pages for labor market information, and indexing it to Elasticsearch for viewing and searching.

2020 **TweetAnalyzer**

A containerized environment for ingesting and enriching Twitter data for fast searching and analysis.

2019 **Vaccination Strategy Optimization**

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

2018 **Reddit Bot Account Detection**

Method for identifying Reddit bots 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

PUBLICATIONS & CONFERENCES

2021 **Automated Elasticsearch Cluster Rehydration**

Elastic Community Conference 2021

2019 **Community Detection With Katz and Eigenvector Centrality**

Complex Networks 2019 - Lisbon, PT

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

IET Smart Grid

2018 **A Battery Pack Reconfiguration Scheme for Improved Charge Balancing**

ACC 2018 - Milwaukee, WI

2015 **A magnetically enhanced wireless power transfer system for compensation of misalignment in mobile charging platforms**

ECCE 2015 - Montreal, CA

TECHNICAL SKILLS

FOCUS AREAS

Data Engineering, Network Science, Optimization, Systems Engineering

PROGRAMMING

Python, Bash, Julia, SQL

CLOUD

Lambda, Step-Function