Reagan **Howell**

APPLIED MATHEMATICIAN · DATA SCIENTIST · MECHANICAL TINKERER

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Summary

I am a passionate applied mathematician with a strong knack for tinkering and mechanical engineering. I have real world experience in developing numerical models and machine learning algorithms to address physics-based challenges and data-driven problems. I am currently searching for a position that allows me to work at the intersection of physics and data.

Work Experience

Sandia National Laboratories
Jun. 2022 - Aug. 2022

SUMMER INTERN
Albuquerque, New Mexico

- Developed machine learning tools based on NumPy and Pandas to track the flow of information over time to identify the sources and spread of disinformation
- Developed game theory based methods to identify and halt the spread of disinformation in simulation
- Developed an internal Python package framework for modelling the spread of disinformation that was applied to identify anti polio vaccination propaganda in African countries

Department of Mathematics
Sep. 2020 - May 2022

RESEARCH ASSISTANT – PROF. LENNARD BAKKER
Provo, Utah

- Developed models for Near Earth Asteroids and studied numerical methods to find and verify the stability of different variations of these 3-body systems
- Built simulations of predicted asteroid trajectories using Kalman Filtering and Auto Regressive Moving Average (ARMA)

Department of Mathematics
Aug. 2019 - Jan. 2020

RESEARCH ASSISTANT – PROF. JARED WHITEHEAD
Provo, Utah

- Developed data-driven and physics-based models to optimize the placement of tsunami early warning buoys
- Curated and refined complex observational data from multiple sources of Indian Ocean earthquakes to a uniform computational database
- Programmed physics-based models based on Navier-Stokes equations to predict the size and speed of earthquakes and tsunamis
- Used the predicted locations and sizes of the earthquakes to determine the areas along fault lines with the most stress and highest risk for an earthquake event

Education

Brigham Young University
Sep. 2018 - Apr. 2022

B.S. IN APPLIED AND COMPUTATIONAL MATHEMATICS EMPHASIS
Provo, Utah

- Concentration: Mechanical Engineering, Dynamical Systems

Relevant Coursework

Advanced Linear Algebra · Ordinary Differential Equations · Machine Learning · Multi-Variable Calculus · Linear and Non-Linear Analysis · Bayesian Statistics · Partial Differential Equations · Complex Analysis · Optimal Control · Dynamic Systems · Design of Control Systems

Skills

Programming Tools	Python · PyTorch · Keras · Linux · C++ · MATLAB
Computational Methods	Numerical Methods · Convex Optimization · Numerical Linear Algebra · Fourier Analysis
Machine Learning Methods	Deep Learning · Regression · Decision Trees · Clustering · Nearest Neighbors
Hardware	Raspberry Pi · Arduino