Ross Brown

Ross-Brown@uiowa.edu - (319)-331-6635 - Iowa City, Iowa

Education

Computer Science and Engineering, *B.S.E.* – GPA: 3.89 *(May 2023)*

The University of Iowa - Iowa City, Iowa

- Focus area: Big Data, Data Science, and Machine Learning. Dean's List (x8), President's List (x5)

Relevant Experience

Software Engineering Internship – *John Deere* *(Summer 2022)*

- Resolved over 200 security vulnerabilities across 6 AWS cloud applications
- Developed an application to determine similarities between support tickets helping reduce the 30% of scrum team velocity taken by support each sprint

Molecular Property Prediction Using Deep Learning – *Gomes Research Lab* *(Oct 2019 – Mar 2023)*

- Implemented Bayesian optimization to tune hyperparameters for models constructed in PyTorch
- Improved molecular graph convolutional neural networks by investigating supervised and self-supervised pretraining methods

Neural Network Development for Atmospheric Data – *Wang Research Lab* *(Jun 2021 – Mar 2023)*

- Utilized satellite data to predict atmospheric conditions using neural networks
- Optimized single-task and multi-task models to replace lookup table retrieval achieving an R^2 of 0.99
- Accelerated forward model computation for near real-time results with 0.23% mean relative error

Engineering Projects

Wearable Computer Vision for the Blind and Visually Impaired – *Capstone Design Project* *(Spring 2023)*

- Designed an embedded device to process video data which relayed important nearby objects using audio queues
- Planned all functionality with user experience as a primary consideration without requiring sight

IoT Aquarium – *Internet of Things Course Project* *(Spring 2023)*

- Created an IoT aquarium with multiple sensors and automated responses through a Raspberry Pi
- Established a seamless data flow by integrating the system with InfluxDB and Firebase, enabling real-time monitoring of sensor data and facilitating user interaction through a React application hosted on AWS

Medical Image Classification – *Machine Learning Course Project* *(Fall 2021)*

- Maximized AUC in chest disease classification from radiographs using convolutional neural networks
- Achieved 3rd best AUC score at 0.88 by employing a suite of data augmentation techniques

Campus Involvement

HawkSec – Cybersecurity club *(Aug 2021 – Dec 2022)*
Music Creators at Iowa – Music writing and production club *(Apr 2021 – Oct 2022)*
Student Teaching Assistant – Process Calculations TA *(Aug 2020 – Dec 2020)*

Skills

Computer Science: Python, Java, Javascript, React, HTML, CSS, C, C#, C++, Assembly, SQL, MATLAB, Shell scripting, Git, Subversion, PyTorch, Pandas, Scikit-Learn, NumPy, TensorFlow, AWS, Cloud computing, REST API, Linux

Research: Machine learning, Convolutional neural networks, Data analysis, Logistic regression, K-means clustering, Computer vision

Professional: Spanish fluency, Agile, Scrum, communication, leadership, teamwork, organization