

Ross Brown

Ross-Brown@uiowa.edu - Iowa City, Iowa

Education

Computer Science and Engineering, B.S.E. – GPA: 3.81 (anticipated May 2023)

The University of Iowa - Iowa City, Iowa

- Focus area: Big Data, Data Science, and Machine Learning
- University Honors, Dean's List (x6), President's List (x2)

Research Experience

Molecular Property Prediction Using Deep Learning – Gomes Research Lab (Oct 2019 – present)

- 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
- Performed computational material design using data from Materials Project and OQMD datasets

Neural Network Development for Atmospheric Data – Wang Research Lab (Jun 2021 – present)

- Utilized satellite data to predict atmospheric conditions using neural networks
- Optimized single-task and multi-task models to replace lookup table retrieval achieving an R2 of 0.99
- Accelerated forward model computation for near real-time results with 0.23% mean relative error

Engineering Projects

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

Multithreaded Server – Software Design Course Project (Spring 2021)

- Developed a GUI and multithreaded server for a multimedia trivia game over TCP as a team of three
- Ranked as a top 3 team project by professors based on scope, execution, and software design techniques

Campus Involvement

HawkSec – Student Organization (Aug 2021 – present)

- Explored computer security and data privacy through capture the flag hacking challenges

Music Creators at Iowa – Student Organization (Apr 2021 – present)

- Created and discussed music in a multidisciplinary group environment

Student Teaching Assistant – Process Calculations (Aug 2020 – Dec 2020)

- Led review sessions prior to exams to communicate important topics in a condensed format
- Monitored class progress with a diverse team of teaching assistants and instructors

Skills

Computer Science: Python, Java, C++, SQL, MATLAB, Bash / Shell, Git, Subversion, Linux, PyTorch, Pandas, Scikit-Learn, NumPy, TensorFlow

Research: deep learning, machine learning, convolutional neural networks, data analysis, logistic regression, K-means clustering, computer vision

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