Mu(Henry) Ha

m8ha@uwaterloo.ca | 519-503-5609 | https://www.linkedin.com/in/mu-henry-ha

ABOUT ME

Data Scientist and AWS Cloud Architect specializing in end-to-end ML solutions and cloud infrastructure

Expertise in Python, PyTorch, AWS CDK, and predictive modeling for vision, forecasting, and robotics

Applied knowledge of quantitative finance and financial modeling, supported by CFA Level I certification

Strong foundation in algorithms, OOP (C++/Java/Python), and robotic control systems

3+ years of mechanical engineering experience with SolidWorks, NX, and full-cycle manufacturing

Unique ability to bridge data science, cloud architecture, and physical system design

EDUCATION

Master of Data Science

University of British Columbia

2024 - 2025

B.Sc. in Mechanical Engineering

Artificial Intelligence Option

Management Science Option

University of Waterloo

2018 - 2024

HONORS & AWARDS

2025 - AWS Cloud Practitioner

2024 - CFA Level I

2024 - Dean's Honours List

2021 - Object Oriented Programming in Java Specialization

2021 - Financial Market Certificate

2020 - Machine Learning Certificate Deep Learning Specialization

2020 - Data Structure and Algorithms in C/C++ Certificate

HOBBIES & INTERESTS

- Trading stocks, options, & BitCoin
- Created a game using python 3 with PyGame library (Sep 2020)
- Aviation training in the air cadets program (2018)
- First aid training and knowledge (2018)

WORK EXPERIENCES

Data Scientist - Brilliant Automation — Apr 2025–Jun 2025

- Developed a predictive maintenance system to monitor the health of industrial machines using sensor data
- Built and trained machine learning models (Ridge, Random Forest, LSTM) to forecast potential failures, with a focus on balancing accuracy and interpretability
- Created an interactive dashboard using Dash to visualize real-time machine health scores, historical trends, and alerts for maintenance scheduling

AWS Cloud Architect - Resolution Life US — Sep 2021–Apr 2022

- Delivered a standardized "golden image" for EC2 servers, streamlining the deployment process with an increase of 80% in efficiency
- Automated the generation of monthly dashboards to visualize RLUS's AWS usage, enhancing decision-making

Data Scientist Research Assistant - UWaterloo — Jan 2021–Apr 2021

- Employed U-Net on satellite images to accurately predict ice concentration and classify land, ice, and water
- Achieved a validation loss and MSE of 0.026 on egression, along with an 0.9 validation accuracy for classification
- Tested multiple regression methods and model structures to identify and implement the most effective approach

PROJECTS

AI Wall Painting Robot with Wall Segmentation - Python, Pytorch — Feb 2024

- Implemented a Pyramid Scene Parsing Network (PSPNet) for wall segmentation
- Designed an encoder-decoder architecture with a PPM-based decoder for pixel-wise classification, evaluating multiple training strategies (transfer learning & end-to-end training) and achieving 92.13% accuracy and 72.58% IoU
- Preprocessed data by flattening irregular wall segments, resizing images, and applying data augmentation

UWAFT-Controls - Python, MatLab — May 2024

- Design and build control algorithm from scratch and implement into repository
- Derive kinematic and dynamic equations suitable for a car simulation
- Design and implement control algorithms and parameters tuning

Time Series Forecasting for TSLA Stock Prices - Python — Aug 2023

- Implemented Temporal Fusion Transformer to analyze Tesla stock prices
- Performed hyperparameter tuning and model selection to optimize the forecasting accuracy, taking into consideration factors like input window size, attention dropout, and learning rate schedules
- Evaluated model performance with MSE, RMSE, R^2, and explained variance

Machine Learning & OOP - Python, Matlab, C++, C — Aug 2020

- Knowledgeable in CNN, RNN, Regularization, Sequence Models, Deep Neural Networks, Hyperparameter tuning, and Reinforcement Learning
- Experiences with algorithms for object detection, face verification, art style transfer, text sentiment detection, machine translation, and voice detection
- Programmed a robot that would recognize goose feces and clean it
- Understood and could implement all fundamental data structures and algorithms

OTHER EXPERIENCES

Manufacturing Engineer - Weir — Sep 2019–Apr 2020

- Estimated production costs for products and made BOMs and Routings in SAP
- conducted gasket compression test and generated design specifications for clients
- Enhanced and recreated the cost estimation spreadsheet for the team for quicker and easier computation

Design Engineer - Weir — Jan 2019–Apr 2019

- Designed and modeled a circular manifold for a chemical plant in Africa also retrofitted multiple lines of spools for clients
- Worked on tight timelines and management (30+ drawings per day)
- Knowledgeable about the entire manufacturing cycle of engineering