

# Hai Hoang

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## EDUCATION

### University of Alberta

Edmonton, Canada

June 2023

- Bachelor of Science with Specialization in Computing Science
  - Awards Dean's Honor Roll (2019 - 2023)
  - Undergraduate Scholarship (2020)
  - International Student Scholarship (2019 - 2021).

**Relevant coursework:** *Algorithms, Computer Organization and Architecture, Machine Learning, Database Management, Software Engineering, Reinforcement Learning, Intelligent Systems, Operating System, GPU Programming.*

## SKILLS & CERTIFICATIONS

- **Languages:** Python, C, C++, MATLAB, SQL.
- **Tools:** Pytorch, Django, Linux, Microsoft Office and Excel, Microsoft Teams.
- **Certifications:** Microsoft Office Specialist for Office Excel®, Reinforcement Learning Coursera.

## PROJECTS

### Collaborative Task Management Android Application

- Led a team of 5 students to develop an Android habit tracker app from concept to release.
- Efficiently managed project timelines, resulting in 100% completion rate of project tasks.
- Organized weekly team meetings, ensuring consistent communication on project status and individual contributions.

### Interactive Tourism Map with Routing Functionality

- Developed a Django web application enabling city exploration of over 10 types of tourist attractions and 30 categories of amenities in nearly 500 cities.
- Optimized routes between user-selected point of interest waypoints by utilizing OpenRouteService API, reducing travel time by an average of 25%.
- Integrated 4 different APIs for geocoding and mapping, allowing real-time filtering and visualization on an interactive map.

### Image Captioning Model with Deep Learning

- Developed and trained a PyTorch image captioning model utilizing Inceptionv3 as a CNN backbone and a LSTM network for sequence generation.
- Improved data loading speed by 70% through hyperparameter optimization and GPU utilized preprocessing.
- Achieved a METEOR Score of 0.245 and a BLEU Score of 0.022 on a test set of 1000 random images.

### Chaos Theory's Strange Attractor Visualization

- Created a dynamic visualizer in Python capable of rendering up to 11 distinct strange attractors.
- Simplified curve generation by evaluating and subsampling attractor functions, allowing visualization of complex systems.
- Investigated up to 5 decimal places of local initialization coordinates for consistent convergent trajectories.

### Neural Network from scratch

- Implemented a scalable neural network model entirely from scratch in Python with feedforward and backpropagation.
- Optimized to achieve approximately 98% test accuracy on Iris and MNIST dataset within 10 seconds of training on CPU.

## VOLUNTEER EXPERIENCE

### nathACKS 2022, NeurAlbertaTech

Edmonton, Canada

June 2022 - August 2022

- *Event Assistant*
  - Compiled and organized 200+ contact entries of media, newsletter and professors.
  - Assisted drafting 50+ outreach emails with a response rate of over 75%.
  - Introduced nathACKS 2022 to 500+ students across 5 classes, resulting in 70% of them joining the event.

### Edmonton Craft Beer Festival, Alberta Beer Festivals

Edmonton, Canada

June 2022 - June 2022

- *Event Assistant & VIP Entrance Attendant*
  - Welcomed 100+ patrons and distributed 400+ promotional merchandise.
  - Prepared over 200 member badges and lanyards for event participants.
  - Directed and provided support for 50+ patrons during the event.

### Freewill Shakespeare Festival, Free Will Players

Edmonton, Canada

June 2022 - June 2022

- *Concession Attendant*
  - Assisted in the setup and maintenance of the concession stand, smoothly operated for 6+ hours.
  - Efficiently restocked the stand's inventory, reduced restocking time by 50%.
  - Sold approximately 30+ various items and consumables to festival patrons.