

Hai Hoang

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EDUCATION

University of Alberta

Graduated 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

- **Languages:** Python, C, C++.
- **Tools:** Pytorch, Django, Linux, Microsoft Office and Excel, Microsoft Teams.

PROFESSIONAL WORK EXPERIENCE

Hanoi University of Science and Technology

September 2023 - Present

- *Research Assistant*
 - Implement a Chaos-based image encryption algorithm for digital imaging and communications in medicine (DICOM) in Python.
 - Introduce pseudorandomness to the encryption process by integrating with a perturbed logistic map, enhancing the security and confidentiality of the encrypted image data.
 - Implemented parallel image encryption using multiprocessing, enabling concurrent processing of up to 16 24-bit images, each with dimensions of up to 1024x1024.

PROJECTS

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.

Neural Network from scratch

- Designed and developed a scalable neural network model entirely from scratch with NumPy.
- Integrated backpropagation and gradient descent, enabling the neural network model to learn and improve its predictions.
- Optimized hyperparameters to achieve approximately 98% test accuracy on Iris dataset within 10 seconds of training on CPU.

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 approximately 500 cities.
- Optimized routes between user-selected point of interest waypoints by utilizing OpenRouteService API, reducing travel time by an average of 25%.
- Integrated Nominatim and Overpass API for geocoding and mapping, allowing real-time filtering and visualization on an interactive Folium map.

VOLUNTEER EXPERIENCE

natHACKS 2022, NeurAlbertaTech

June 2022 - August 2022

- *Event Assistant*

Edmonton Craft Beer Festival, Alberta Beer Festivals

June 2022 - June 2022

- *Event Assistant & VIP Entrance Attendant*

Freewill Shakespeare Festival, Free Will Players

June 2022 - June 2022

- *Concession Attendant*