Tony Ho - Computer Vision and Machine Learning Engineer

Vancouver, B.C
tho121@hotmail.com
https://www.linkedin.com/in/tonyhoprogrammer/
https://github.com/tho121

TECHNICAL SKILLS

- Languages: C#, C/C++, Python, Java, Matlab, Javascript, SQL
- Tools: Git, Visual Studio, Visual Code, Jupyter Notebook, WSL2, Unity3D, Android Studio
- Libraries: PyTorch, Torchvision, Detectron2, LibTorch, Tensorflow, Pandas, Scikit

EXPERIENCE

DaoAI Robotics - Vancouver, Canada - *Intern Computer Vision and Machine Learning Engineer*

January 2022 - August 2022

- Developed computer vision for bin picking robotic arms in a factory environment
- Training computer vision models using PyTorch, Torchvision, Detectron2, in Python
- Implementing model inference and visualizations in C++ using OpenCV, LibTorch
- Developed a computer vision training pipeline including; data cleaning tools and formatting, model training, testing, and deployment, model debugging tools
- Researched, developed, and deployed a Rotated Mask RCNN model, enabling instance segmentation for industry-specific applications

Game Developer Software Engineer Experience

Critical Force - Kajaani, Finland & Seoul, South Korea - July 2017 - April 2019
Artcode Interactive - Vancouver, Canada - November 2014 - January 2017
Skybox Labs Inc - Vancouver, Canada - November 2013 - October 2014

- Worked in an agile environment with daily stand-ups with technical and non-technical stakeholders
- Developed core user features and developer support tools to live services
- Created various gameplay systems including 3D vector physics, AI, and procedural environments
- Experience with shaders, mesh manipulation, VFX implementation, and audio integration

PROJECTS

Connect4 Assistant - *Project using PyTorch, Torchvision, deployed on Android - Dec 2022*

Using the Faster RCNN model, trained on a custom dataset, to infer the current state of a real-world Connect4 match
Deployed on an Android phone, performs inference on the camera stream and displays recommended actions

Emoji Prediction - *Project using DistilBERT and Python - Dec 2021*

Using the DistilBERT model, fine-tuned to classify tweets from Twitter using emojis
Trained using dataset built from real tweets, gathered using the Twitter API

Obstacle Avoidance Robot Simulation - *Project using Unity MLAgents and C# - Apr 2021*

Trained a simulated robot to avoid various obstacles using deep reinforcement learning
Used the Proximal Policy Optimization algorithm, trained in parallel environments

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EDUCATION

Simon Fraser University - Vancouver, Canada - *Masters in Professional Computer Science*

September 2022 - Current

Courses include: Machine Learning, Computer Vision Lab

Simon Fraser University - Vancouver, Canada - *Bachelor in Science*

September 2020 - August 2022

Courses include: Computer Vision, Natural Language Processing, Computational Data Science, Biomedical Computing, Robotic Autonomy, Database Systems

Art Institute of Vancouver - Vancouver, Canada - *Visual and Game Programming Diploma*

June 2011 - March 2013

Courses include: Networking, Graphics, Game Physics, Vector Math

CERTIFICATES

Udacity Nanodegree for Machine Learning Engineer in AWS

Topics include: Distributed Training, Endpoint Deployment, Cloud Resource Management

Udacity Nanodegree for Deep Reinforcement Learning

Topics include: Deep Q-Learning, Proximal Policy Optimization, Multi-Agent Systems, AlphaZero

Udacity Nanodegree for C++

Topics include: Memory Management, Concurrency, C++17 features

RESEARCH

ToonNote: Improving Communication in Computational Notebooks Using Interactive Data Comics

Developed a JupyterLab extension to dynamically create data comics from notebook outputs

Uses the JupyterLab extension framework and implemented in Typescript

Published at CHI 2021, credited as the 2nd author

INTERESTS

- Mobile App Development
- Growing my audiobook library with over 2700 hours of listening time on Audible
- Combining reinforcement learning with games to develop AI players