Anita Hu

Machine learning and computer vision enthusiast

✉ anita.hu@uwaterloo.ca
☎ (289) 395-0690
in linkedin.com/in/anitahu113
○ github.com/anita-hu

EXPERIENCE

COMPUTER VISION DEVELOPER | Miovision   May 2019 – Aug. 2019
Python, Tensorflow, Scikit-Learn, Pattern Recognition, Machine Learning

- Automated turning-movement-count template generation from vehicle tracks using Kmeans clustering, Gaussian mixture models, and least-squares optimization
- Rearchitected layers of YOLOv3, as the first proof-of-concept for future Tensorflow models, to be compatible with Miovision's existing SSD framework
- Significant customer impact with over 50% error reduction through continuous-iterative SSD model training
- Reduced development iteration time through stochastic gradient descent with restarts that resulted in 100k fewer training iterations

PROJECTS

WATONOMOUS | SAE AutoDrive Challenge   Sep. 2018 – Present
Python, C++, OpenCV, ROS, Tensorflow, Machine Learning

- Currently perception group manager, responsible for assignment and prioritization of tasks, cross-team integration, and in-car operation of the software pipeline and sensors
- Working with LiDAR and camera sensors to solve tasks including 3D object detection, object classification, and roadline detection
- Achieved 0.96 mAP with SSD model trained on synthetic images of 15 traffic sign classes
- Developed ROS nodes for traffic light, traffic sign and obstacle detection that subscribes to camera frames and publishes detection messages
- Integrated Tensorflow and Darknet models in ROS with OpenVINO
- Implemented traffic light detection and state classification with OpenCV

DEEP LEARNING SPECIALIZATION | Coursera   Jul. 2019 - Present
Python, Tensorflow, Keras, NumPy, Machine Learning

- Implemented ResNet50 model architecture in Tensorflow with Keras
- Art generation with neural style transfer algorithm involving content and style cost function, using layer activations from VGG model
- Face recognition with FaceNet using triplet loss, measuring distance between image encodings

HAND GESTURE GUI CONTROL | Side Project   Dec. 2018
Python, OpenCV, PyAutoGUI

- Implemented touchless control of mouse and keyboard with hand gestures
- Used OpenCV contours and convex hull to determine the number of fingers
- Controlled mouse movement based on the relative position of the palm

OTHER PROJECTS

- **Vision AI:** a wearable to aid the visually impaired with environment description and image to text modules
- **BitToBin:** smart trash bin that sorts waste using computer vision

SKILLS

LANGUAGES

Python • C++ • Bash • HTML • CSS • JavaScript

FRAMEWORKS

OpenCV • Tensorflow • Scikit-Learn • NumPy • Matplotlib • Git • ROS

SOFT SKILLS

Leadership • Problem solving • Teamwork • Communication • Time management

AWARDS

BEST LEARN IN HACK   2018
Hack the 6ix category prize

HACK THE NORTH FINALIST 2017
Out of 1000 participants

EDUCATION

UNIVERSITY OF WATERLOO
Mechatronics Engineering
Honors Co-op, 2018 - 2023

- Dean's Honours List (F18, W19)
- President's Scholarship of Distinction

RELEVANT COURSES

- Algorithms and Data Structures

INTERESTS

MUSIC COMPOSITION
YouTube channel for piano compositions and song covers with 80+ videos

▶ youtube.com/AnitaHuMusic