Anita Hu

Machine learning and computer vision enthusiast

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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 the 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

⬏ AR NINJUTSU BATTLE SIMULATOR | Hack the North   Sep 2019
Python, Keras, OpenCV, Machine Learning, Flask, Voiceflow API

- A game where two players brawl off in the battle of Naruto ninjutsu hand signs. Each player has an anime figure. When ninjutsu is cast, the effect is projected on the anime figure as a hologram.
- Implemented a custom classification model from scratch to identify 12 unique hang signs using Keras
- Worked on python backend with Flask and game logic

⬏ 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 • Keras • Tensorflow • NumPy • Scikit-Learn • Matplotlib • Git • ROS

SOFT SKILLS

Leadership • Problem solving • Teamwork • Communication • Time management

AWARDS

HACK THE NORTH FINALIST   2019
Out of 1500 participants

VOICEFLOW API PRIZE   2019
Out of 20+ teams in Hack the North

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
- Deep Learning (5-course specialization on Coursera)

INTERESTS

MUSIC COMPOSITION

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

▶ youtube.com/AnitaHuMusic