Hao Cheam

https://www.linkedin.com/in/haocheam/ hcheam@umass.edu
https://github.com/chc442 413-313-8950

Education

University of Massachusetts Amherst
MS in Computer Science; GPA: 3.6/4.0 *Aug 2018 – Sep 2020*
Courses: Computer Vision, Machine Learning, Robotics, Artificial Intelligence, Reinforcement Learning, Neural Networks

The University of Texas at Austin
BS in Electrical and Computer Engineering (Honors; Minor in French); GPA: 3.8/4.0 *Aug 2011 – May 2015*

Projects

Mini Self-Driving Car
- Built a mini self-driving car using Arduino Uno and Raspberry Pi, for a year-long team course project
- Wrote Dijkstra's shortest path algorithm in Python to solve path planning
- Implemented vision-based lane detection with HSV thresholding in Python

Deep Learning Pokemon Classifier
- Trained a 7 layer Convolutional Neural Network (CNN) in Python using Keras and Tensorflow on a dataset of about 1400 pokemon images. Obtained accuracy of about 93% over 6 classes
- The dataset was collected using the Microsoft Azure Bing Image Search API

Ground Crack Detection
- Used image filtering and Canny edge detection to find cracks in the ground
- Methods used: median filter, bilateral filter, canny edge detector, log of image, morphological filter
- Written in Python using OpenCV

Grid Pathfinding with A* and Jump Point Search
- Implemented A* with Jump Point Search in C++ to solve a grid pathfinding problem

High Confidence Policy Improvement (Reinforcement Learning)
- Using importance sampling, produced stochastic policies written in C++ that outperformed the behavior policy for an adaptive insulin advisor

Voice Control of Switchable Privacy Glass with Alexa
- Designed an embedded system to enable voice control of a switchable privacy glass
- Interfaced an ESP8266 microcontroller in C++ to communicate with Amazon Echo

Experience

Data Center Engineer *Aug 2017 - Jun 2018*
Powerware Systems *Selangor, Malaysia*
- Designed and built temperature/humidity monitoring systems as part of a 3 person team
- Created shop drawings of electrical panels in AutoCAD, planned cable routing, and built electrical panels
- Introduced a documentation system for in-house processes, reducing the time spent on knowledge transfer
- Wrote a C++ program to automate the conversion of 64 bit hex to floating point for Modbus application
- Converted a switchable privacy glass to be voice-controlled, increasing the company's marketability

Graduate Teaching Assistant *Aug 2015 - Dec 2016*
ECE Department, The University of Texas at Austin *Austin, TX*
- Assisted in teaching an undergraduate Signals and Systems course of about 30 students

Skills

Programming Languages: Python, C++, C
Frameworks/Tools: OpenCV, PyTorch, Keras, Linux, Git
Languages: Chinese (Fluent), Malay (Intermediate), French (Intermediate)

Certifications

- Business Foundations Series for Scientists and Engineers (8 weeks, Summer 2019)