Evan Tan

github.com/evantancy | evantancy.github.io | tcyevan@gmail.com

EDUCATION

Monash University Melbourne, Australia
Bachelor of Robotics and Mechatronics Engineering (Upper Second-Class Honors) July 2017 - December 2021

- Specialization in Artificial Intelligence
- **Key Achievements:** 2019/2020 - Engineering Leadership Program, 2018 - 1st place Australasian FSAE Business Presentation
- **Relevant Coursework:** Machine Learning, Deep Learning, Computer Vision, Robotics, Probability & Discrete Mathematics

EXPERIENCE

AIDrivers Singapore
Autonomy Engineer March 2021 - May 2021

- Co-led the company's first computer vision safety product and oversaw a team for the machine learning pipeline
- Achieved model accuracy over 80% using instance segmentation and computer vision in Python

Autonomy Engineer Intern December 2020 - March 2021

- Successfully automated configuration of development environment using Ansible and Bash scripts
- Improved reliability via containerization of production environment using Docker
- Performed calibration and testing for autonomous sensor suite

SKILLS

Languages: Python, Solidity, JavaScript, C/C++, HTML, CSS, MATLAB
Software: Foundry, Hardhat, Git, Docker, Ansible, Bash, Unix/Linux, ROS, Gazebo, Raspberry Pi
Libraries: React, ethers.js, Moralis, PyTorch, NumPy, OpenCV, matplotlib, Jupyter, Shapely

PROJECTS & RELEVANT COURSEWORK

NFT Marketplace

- Created a multi-chain NFT marketplace that detects ERC721 and ERC1155 tokens in a user's wallet to buy and sell tokens
- Programmed a smart contract that handles both ERC721 and ERC1155 tokens for listings and sales

Random Words NFT

- Programmed ERC721 token contract to randomly generate traits, stored fully on-chain and deployed contract to Rinkeby testnet
- Implemented website using React and ethers.js to allow users to connect wallet and mint tokens
- Tested and deployed contract using foundry

Deep Reinforcement Learning for Intelligent Traffic Management September 2021 - October 2021

- Achieved 47% lower waiting time and 10% increased average speed by crafting a novel reward function with expert information for traffic intersections in SUMO-RL
- Managed a team to collaboratively share models and training data using TensorBoard, and enforced version control using Git

Neural Networks and Deep Learning July 2021 - November 2021

- Designed custom convolutional neural networks for image classification problems in PyTorch, using additional image transformations to diversify dataset
- Studied occlusion sensitivity on model predictions and visualized the output of convolutional layers

Computer Vision March 2021 - May 2021

- Implemented computer vision algorithms such as image convolutions, canny edge detection with non-maxima suppression, K-means clustering, image stitching, and stereo reconstruction in MATLAB

Teleoperated Pose Estimation Robot July 2020 - November 2020

- Achieved 100% pose estimation accuracy of detected objects with an average of 0.29m discrepancy with max range of 10m, by combining non-linear regression, bounding box size and intrinsic camera properties
- Led a team for data annotation and labelling for custom objects and trained model on cloud computing resources
- Created scripts to gather annotation datasets for the machine learning pipeline using for ROS and Gazebo simulator in Python
- Optimized program runtime by 74% through code profiling and analyzing individual components

Autonomous Self-Balancing Robot July 2019 - November 2019

- Extracted key objects in cluttered environments through image processing using OpenCV, allowing robot to autonomously navigate around a track
- Successfully enabled I2C and UART communication protocols between components by interfacing Raspberry Pi with camera, orientation sensor, and MSP430 micro-controller according to drawn schematics