HaoChih, LIN

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EXPERIENCES

Master Thesis - Sony AI. Zurich, Switzerland. (2020-04 ~ 2020-10)
Topic: Curriculum Reinforcement Learning for Overtaking in PS4-GTS. (score: 6.0/6.0, https://uzh-rpg.github.io/gts/)
Advisors: Yunlong Song, Elia Kaufmann, Prof. Dr. Davide Scaramuzza (UZH-RPG), Dr. Peter Durr (SonyAI Zurich)
Proposed the Three-Stage Curriculum SAC to train a control policy for aggressive overtaking in multi-car racing game.

Research Intern - Baidu USA. Sunnyvale, USA. (2019-09 ~ 2020-02)
Topic: RMBIL - Robust Model-Based Imitation Learning via Nonlinear Dynamics Inversion with Neural ODE
Formulated imitation learning as a nonlinear tracking control problem via nonlinear dynamics inversion (NDI), where the learned dynamics and NDI controller are trained by closed-loop Neural ODE. Experiments show that RMBIL is competitive to GAIL but without the needs of environment interactions, and gets ~30% performance increase over BC.

Research Assistant - Autonomous Systems Lab, ETHZ. Zurich, Switzerland. (2019-06 ~ 2019-08)
• Developed a C++ plugin for Maplab VI-SLAM framework to integrate Hololens data stream (use Kalibr for calibration)
• Transferred the learned detectors/descriptors from SuperPoint to Maplab to improve localization robustness.

Research Assistant - Robotic Systems Lab, ETHZ. Zurich, Switzerland. (2018-09 ~ 2019-06)
• Joined the development of Noesis, a reinforcement learning framework (Tensorflow/C++) for robot-dog (ANYmal).
• Implemented SOTA reinforcement algorithms (PPO & DQN) on the framework with multi-threads safety features.
• Developed user-friendly python tools for training and inference performance comparison (against openai-baselines).

Senior Robotics Software Engineer - ADLINK Technology Inc. New Taipei, Taiwan (2017-08 ~ 2018-07)
ADLINK is the 2nd biggest industrial computers manufacturer in Taiwan. Joined ARPG team, reported to CEO directly.
• Developed ROS2/DDS demo kit (multi-sensor fusion, VI-SLAM, avoidance), and presented it in ROS-I Meeting.
• In charge of prototyping the system architecture for integrating ROS2/DDS middleware with ADLINK products.
• Supervised the development of autonomous mobile robot (AMR) for warehouse applications (budge:2M USD).

Founder & Lecturer - HyphaROS Workshop. Taipei, Taiwan (2017-04 ~ 2018-07)
HyphaROS is one of the most famous workshop for providing ROS training/services in Taiwan.
• Developed ROS kits: RaceCar (1/10, 3 m/s) & MiniCar (1/20 lidar-encoder ackermann rover with 2-layers MPC).
• Provided proof-of-concept (PoC) service for robotics applications, e.g. autonomous indoor exploration using drone.
• Organized the largest ROS developer meetup in Taiwan with ~100 participants (https://ros-taipei.wixsite.com/2018).

EDUCATION

Eidgenössische Technische Hochschule Zürich (ETHZ), Zurich, Switzerland (2018-09 ~ 2020-10).
Master of Science in Robotics, Systems and Control (mentor: Prof. Dr. Roland Siegwart)

National Cheng Kung University (NCKU), Tainan, Taiwan (2011-09 ~ 2015-06).
Bachelor of Aeronautics and Astronautics (Overall GPA: 3.96/4.0, Major GPA: 4.0/4.0, Rank: 1/58)

PROJECTS

Semester project (ETHZ-RSL): Learning Continuous Time Dynamics using ODENets. (2018)
Advisors: Vassilios Tsounis, Dr. Farbod Farshidian, Prof. Dr. Hutter, Marco.
Integrate Mixture Density Network with Neural ODE to learn continuous actuated hybrid dynamics (the legged robot with different gaits). The results achieved SOTA accuracy for multi-steps (200 steps forward) trajectory prediction.

Course project (ETHZ-ASL): Inter-modality Representation Learning. (2018)
Advisors: Mathias Bürki, Lukas Schaupp, Dr. Cesar Dario Cadena Lerma.
This project aims to find shared and exchangeable representations for vision and LiDAR modalities. We proposed a network architecture with separate encoders but a shared decoder for both interest point and descriptor predictions.

SKILLS

Python (proficiency), C++ (intermidiate), PyTorch (intermidiate), Tensorflow (intermidiate), ROS/ROS2 (proficiency)