HaoChih, LIN

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EXPERIENCES

AI Engineer - Sony AI. Zurich, Switzerland. (2020-11 ~ present)
Apply Reinforcement Learning on Commercial Products (focus on Gaming AI)
• Designed a novel continuous reward that improves the sota performance by 30% and converges faster.
• Proposed new metrics and pipelines to evaluate the trained policies. It helps the team to find the best agent.

Master Thesis - Sony AI. Zurich, Switzerland. (2020-04 ~ 2020-10)
Topic: Curriculum Reinforcement Learning for Overtaking in PS4-GTS. (the result got accepted by ICRA2021)
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)
Conduct independent research on imitation learning. (the result got accepted by ICRA2021)
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 using NODE.

Research Assistant - RSL, 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) with multi-thread safety features on the framework.
• 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 charged of system architecture design for integrating ROS2 middleware with existing 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).
• Organized the largest ROS developer meetup in Taiwan - 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, Overall GPA: 5.5/6.0)

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

Eidgenössische Technische Hochschule Zürich (ETHZ), Zurich, Switzerland (2019-04 ~ 2019-08)
Semester Project: *Learning Continuous Time Dynamics using ODENets (5.5/6.0)*
Advisor: Vassilios Tsounis (PhD candidate), Dr. Farbod Farshidian, Prof. Dr. Hutter, Marco.
Integrate Mixture Density Network with ODENets to predict continuous actuated hybrid dynamics (with different gaits).

PUBLICATIONS

[ICRA2021] *Fast & Furious: Autonomous Overtaking in Gran Turismo Sport Using Curriculum Reinforcement Learning*
Yunlong Song*, **HaoChih Lin***, Elia Kaufmann, Peter Durr, and Davide Scaramuzza (*equal contribution)

[ICRA2021] *No Need for Interactions: Robust Model-Based Imitation Learning using Neural ODE*
HaoChih Lin, Baopu Li, Xin Zhou, Jiankun Wang, and Max Q.-H. Meng

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SKILLS

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