Lin Cong

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Education

RA | ***AI & Simulation*** — Feb. 2022 – present
Universität Hamburg (UHH) — Hamburg, Germany

Ph.D. Candidate | ***AI & Robotics*** — Oct. 2017 – Jan. 2022
Universität Hamburg (UHH) — Hamburg, Germany

M.S. | ***Robotics*** — Sep. 2015 – Jun. 2017
Harbin Institute of Technology (HIT) — Harbin, China

B.S. | ***Robotics*** — Sep. 2010 – Jun. 2014
Harbin Institute of Technology (HIT) — Harbin, China

Skills

Speciality: Deep Learning, Physics Engine, Simulation, Robotics
Programming: C++, Python, C#
Software: Tensorflow, Pytorch, ROS, Blender, Unity, Unreal, Mujoco

Demonstration Presentations

Efficient Human Motion Reconstruction
https://hitlyn.github.io/EHMR/

Visual Pushing with Reinforcement Learning
https://hitlyn.github.io/RLVP/

Multimodal Grasping with Reinforcement Learning
https://hitlyn.github.io/MGBRL/

Model Prediction and Robot Control for Object Planar Pushing
https://hitlyn.github.io/Pushing/

Self-supervised Attention Mechanism
https://hitlyn.github.io/Attention/

IMU-based motion tracking system
https://hitlyn.github.io/IMUs/

Quadrupedal robot design and remote control system
https://hitlyn.github.io/Spotmini/

Dexterous arm-hand system teleoperation with VR equipments
https://hitlyn.github.io/Oculus/

Projects

Ultracept Secondment — Dec. 2022 – Mar. 2023
Tsinghua University — Beijing, China

- System integration and obstacle avoidance algorithm design
- Human motion detection algorithm design for autonomous system

Crossmodal Transfer of Dexterous Manipulation Skills — Oct. 2017 – present
Universität Hamburg — Hamburg, Germany

- Perform research and experiments on robot learning for TRR169 Crossmodal Learning
- Build simulation environment with Mujoco for robot learning
- Reinforcement learning algorithm design with Pytorch and Tensorflow for robot manipulation tasks
- Model deployment on real robot platforms using ROS
- Five publications with first or corresponding authorship (one pre-print paper included)

Exo-Skeleton Robot Control System and Algorithm Design Jul. 2015 – Jul. 2017
Harbin Institute of Technology Harbin, China

- 3D modeling for the Exo-Skeleton robot mechanical structure
- Control board, sensors and actuator integration
- Design the control system and algorithm for the Exo-Skeleton robot
- One first authorship publication on the robot follow-up control algorithm
- One co-author publication for the contribution of robot hardware design

Academic Training and Activities

Symposium on Crossmodal Learning in Humans and Robots Nov. 2019
Universität Hamburg Hamburg, Germany

CML Summer School 2019 Sep. 2019
Universität Hamburg Hamburg, Germany

CML Summer School 2018 Sep. 2018
Tsinghua University Beijing, China

Honors and Awards

Munich Sep. 2023
Second Prize for China Innovation & Entrepreneurship International Competition Beijing, China

Beijing Aug. 2023
Second Prize for HICOOL 2023, landing reward of 1M RMB Beijing, China

Universität Hamburg Nov. 2017
Full Scholarship from China Scholarship Council (CSC) Hamburg, Germany

Harbin Institute of Technology Jun. 2016
National Scholarship Harbin, China

Harbin Institute of Technology Oct. 2015
National Scholarship Harbin, China

Selected Publications

Lin Cong*, Philipp Ruppe*, Xiang Pan, Yizhou Wang, Norman Hendrich and Jianwei Zhang.
Efficient Human Motion Reconstruction from Monocular Videos with Physical Consistency Loss. *Siggraph Asia* , 2023

Lin Cong, Hongzhuo Liang, Philipp Ruppel, Yunlei Shi, Michael Görner, Norman Hendrich and Jianwei Zhang.
Reinforcement Learning with Vision-Proprioception Model for Robot Planar Pushing. *Frontiers in Neurorobotics*, 2022

Lin Cong* , Hongzhuo Liang*, Norman Hendrich, Shuang Li, Fuchun Sun, Jianwei Zhang.
Multifingered Grasping Based on Multimodal Reinforcement Learning. *IEEE Robotics and Automation Letters (RA-L)*, 2021

Lin Cong, Yunlei Shi, Jianwei Zhang.
Self-supervised Attention Learning for Robot Control. *IEEE International Conference on Robotics and Biomimetics (ROBIO)*, 2021

Lin Cong, Michael Görner, Philipp Ruppel, Hongzhuo Liang, Norman Hendrich, Jianwei Zhang. Self-Adapting Recurrent Models for Object Pushing from Learning in Simulation. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2020