Honglin He

- hollis71025@gmail.com - Homepage - Google Scholar

EDUCATION

Tsinghua University **GPA: 4.0/4.0 Rank: 1/42**
M.S. in Control Science and Engineering *Sep 2021 - July 2024*
Xiamen University **GPA: 85.11/100**
B.E. in Automation *Sep 2017 - July 2021*

SELECTED PUBLICATIONS

Full list available at Google Scholar

- **Towards Autonomous Micromobility through Scalable Urban Simulation** , Arxiv 2024
  Honglin He* ,Wayne Wu*, Todd Zhang, Jack He, Seth Zhao, Ran Gong, Quanyi Li , Bolei Zhou
- **MetaUrban: An Embodied AI Simulation Platform for Urban Micromobility** , Arxiv 2024
  Honglin He* ,Wayne Wu*, Jack He , Yiran Wang , Chenda Duan, Zhizheng Liu , Quanyi Li , Bolei Zhou
  Project Page
- **KnowMoformer: Knowledge-Conditioned Motion Transformer for Controllable Traffic Scenario Simulation**, CVPR 2024 Workshop on DDADS
  Honglin He, Shu Li, Jingxuan Yang, Linxuan He, Yi Zhang, Qiujing Lu, Shuo Feng Paper Page
- **OrthoPlanes: A Novel Representation for Better 3D-Awareness of GANs** , ICCV 2023
  Honglin He*, Zhuoqian Yang*, Shikai Li, Bo Dai, Wayne Wu Project Page
- **DNA-Rendering: A Diverse Neural Actor Repository for High-Fidelity Human-centric Rendering** , ICCV 2023
  Wei Cheng*, Ruixiang Chen*, Wanqi Yin*, Siming Fan*, Keyu Chen*, **Honglin He**, Huiwen Luo, Zhongang Cai, Jingbo Wang, Yang Gao, Zhengming Yu, Zhengyu Lin, Daxuan Ren, Lei Yang, Ziwei Liu, Chen Change Loy, Chen Qian, Wayne Wu, Dahua Lin, Bo Dai, Kwan-Yee Lin Project Page(#2 Contributor as shown on the page)
- **Few-Shot Testing of Autonomous Vehicles with Scenario Similarity Learning**, Submitted to IEEE TITS
  Shu Li, **Honglin He**, Jingxuan Yang , Jianming Hu, Yi Zhang, Shuo Feng
- **Adaptive Testing for Connected and Automated Vehicles with Sparse Control Variates in Overtaking Scenarios**, ITSC 2022
  Jingxuan Yang, **Honglin He**, Yi Zhang, Shuo Feng, Henry Liu
- **Adaptive safety evaluation for connected and automated vehicles with sparse control variates**, IEEE TITS 2023
  Jingxuan Yang, Haowei Sun, **Honglin He**, Yi Zhang, Henry Liu, Shuo Feng
- **Few-Shot Scenario Testing for Autonomous Vehicles Based on Neighborhood Coverage and Similarity**, IV Symposium 2024
  Shu Li, Jingxuan Yang, **Honglin He**, Yi Zhang, Jianming Hu, Shuo Feng

RESEARCH EXPERIENCE

University of California, Los Angles [Visiting Research Scholar] **(Supervisor: Assistant Prof. Bolei Zhou)**
California, United States *Apr 2024 - Now*

- **Urban Simulation Platform-MetaUrban**
  Developed a simulation platform for embodied AI in urban spaces **MetaUrban**, which can generate large-scale urban scenarios through procedural generation for RL training. Based on MetaUrban, built **benchmarks** on RL, safeRL, offline RL and IL.
- **Urban Simulation Platform-Urban-X**
  Developed a simulation platform for embodied AI **Urban-X**, particularly for autonomous micromobility in urban spaces. Based on Isaacsim, I designed the system technologically and implemented it , and developed the mechanism of **Asynchronous Scene Sampling** to generate diverse scenarios in parallel, achieving about **2800 FPS** in RL training. Designed the primitive learning framework and conducted experiments for benchmark on **4 robots** (Wheeled, Quadruped, Wheeled-Legged and Humanoid).

Shanghai AI Laboratory [Research Intern]

Beijing, China *Aug 2022 - Mar 2024*

- **3D Human Generation. (Supervisor: Dr. Bo Dai and Dr. Wayne Wu)**
  Proposed a novel hybrid implicit-explicit volumetirc representation **Orthoplanes** for neural rendering of 3D scenes; significantly improves quality and view-consistency of rendering on large view-angles. In reconstruction tasks, it achieves **best performance** compared with volume and triplane. In generation tasks, it achieves **state-of-the-art** performance on 3D human face (4.01 FID), cat face (2.82 FID) and human body (4.18 FID) generation.
- **3D Human Dataset and Benchmark. (Supervisor: Dr. Kwan-Yee Lin)**
  Working on DNA-Rendering, a large-scale and diverse dataset and benchmark for high-fidelity human rendering. maintaining the **entire toolchain**, including matting, SMPLX and text-related annotations, conducting experiments based on NeuralBody, AnimatableNeRF, etc. The project became **a critical tool for advancing human-centric AI research**.

Intelligent Transportation Laboratory, Tsinghua University [Research Student]

Beijing, China *Nov 2022 - May 2024*

- **Naturalistic Driving Environment Reconstruction. (Supervisor: Assistant Prof. Shuo Feng)**
  Working on the project of approaches for naturalistic driving environment reconstruction/generation based on nuPlan, Waymo and other open-source datasets, building **a realistic, city-scale and long-term driving environments** for autonomous driving. The environment is designed to support the training and validation of autonomous driving systems, providing a robust platform for improving the safety and reliability of autonomous vehicles.

SKILLS

- **Programming:** C/C++, Python, Bas, LaTeX
- **Frameworks and Tools:** PyTorch, Isaacsim, Omniverse, Tensorflow, Git, Vim
- **Language Skills:** Mandarin (native), English

AWARDS

- **First Prize Scholarship for Academic Performance, Xiamen University** Dec 2020
- **First Prize Scholarship for Academic Performance, Xiamen University** Dec 2019