

ZANMING HUANG

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EDUCATION

Boston University

M.S. in Electrical and Computer Engineering

Boston, MA, United States

Jan 2023

University of Hong Kong

B.S. in Decision Analytics, Minor in Mathematics

Pok Fu Lam, Hong Kong

Jun 2018

PUBLICATION

- **Zanming Huang***, Zhongkai Shangguan*, Jimuyang Zhang, Gilad Bar, Matthew Boyd, Eshed Ohn-Bar. *ASSISTER: Assistive Navigation via Conditional Instruction Generation*. European Conference on Computer Vision (ECCV), 2022
- Jimuyang Zhang, **Zanming Huang**, Eshed Ohn-Bar. *Coaching a Teachable Student*. Conference on Computer Vision and Pattern Recognition (CVPR), 2023 (**Highlight, Top 2.5%**)
- Jimuyang Zhang, **Zanming Huang**, Arijit Ray, Eshed Ohn-Bar. *Language-based Driving Models*. Under Review for Conference on Computer Vision and Pattern Recognition (CVPR), 2024

RESEARCH EXPERIENCE

Boston University

Research Assistant

Boston, MA, United States

Oct 2021 – Apr 2024

Self-supervised 3D Perception and Feature Extraction

- Extract spatial representations given image by leveraging spatialtemporal consistency through self-supervision.
- Proposed a pipeline for predicting birds-eye-view (BEV) semantic map using raw sensor outputs, bypassing the need for manual segmentation annotations.

Vision-based Sensorimotor Policy

- Proposed a method for devising robust end-to-end autonomous driving policies using simulation (e.g., CARLA) and real-world (e.g., nuScenes) data.
- Designed a deep teacher-student distillation framework to more effectively train a vision only driving agent, achieving state-of-the-art performance on closed-loop CARLA benchmarks.

Human Motion Modeling

- Researched on data-driven methods for simulating organic navigation strategies and generating naturalistic human motions, utilizing simulation environments such as Isaac Sim.

Vision-and-Language Navigation

- Developed a goal-driven vision-and-language navigation model leveraging transformer architectures for intelligent mobile systems. Method outperformed previous state-of-the-art in both open-loop and closed-loop evaluations.

PROFESSIONAL EXPERIENCE

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Algorithm Engineer

Hong Kong | Changsha, China

Jul 2018 – May 2021

Autonomous Vehicle Algorithm Research, Design, and Implementation

- Implemented various optimal control, model predictive control, loop-shaping, bumpless control, and robust control strategies to improve vehicle control performance and robustness on highways and urban settings.
- Designed a robust target selection method and trajectory estimation algorithm for level-2 autonomous vehicles.
- Developed data-driven models for vehicle action prediction algorithm based on radar, camera, LiDAR, and vehicular sensors.

ADDITIONAL ACTIVITY

- Reviewer for CVPR (2024)
- Volunteer for AVA: Accessibility, Vision, and Autonomy workshop at CVPR (2022, 2023)

RESEARCH INTEREST

My research interest lies in building autonomous and assistive systems, with a particular focus on making systems more robust to dynamic environments and generalizable to unseen scenarios.

SKILL

- *Programming*: Python, C/C++, PyTorch, TensorFlow, MATLAB/Simulink, R, SQL, CUDA, LaTeX, ROS.
- *Software*: Linux, UNIX, Unreal, CARLA, Unity, Isaac Sim/Gym, Git.
- *Languages*: Fluent in English, Mandarin, and Cantonese.