ZANMING HUANG

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EDUCATION

Boston University Boston, MA, United States
M.S. in Electrical and Computer Engineering *Jan 2023*
Relevant Courseworks: Deep Learning, Machine Learning, Adv. Data Structures, Optimization

University of Hong Kong Pok Fu Lam, Hong Kong
B.S. in Decision Analytics, Minor in Mathematics *Jun 2018*
Relevant Courseworks: Big Data Analytics, Data Mining, Probability and Statistics

PUBLICATION

- Jimuyang Zhang, **Zanming Huang**, Eshed Ohn-Bar. *Coaching a Teachable Student*. Conference on Computer Vision and Pattern Recognition (CVPR), 2023 ***(Highlight)***
- **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

RESEARCH EXPERIENCE

Boston University Boston, MA, United States
Research Assistant *Oct 2021 to Present*

Self-supervised 3D Perception and Feature Learning (1 paper under review)
- Proposed a novel pipeline for predicting birds-eye-view (BEV) semantic map using raw sensor outputs, bypassing the need for manual segmentation annotations.
- Using **self-supervised learning** to infer spatial features given image input, bolstering downstream **BEV prediction**.

Vision-based Sensorimotor Policy Learning
- Proposed a novel method for learning robust end-to-end autonomous driving policies using **simulation** (e.g., CARLA) and real-world (e.g., NuScenes) data.
- Designed a deep **distillation** framework to more effectively train a **vision only driving** agent through learing from a teacher with access to privileged information, achieving state-of-the-art performance on CARLA benchmarks.

Human Motion Modeling
- Researched on **reinforcement learning** based methods for discovering motion policies and generating naturalistic human motion by leveraging robot learning simulations (e.g., Isaac Sim).
- Designed data-driven methods for creating realistic scenarios with real-world and simulation data.

Vision-and-Language Navigation
- Developed a novel goal-driven **vision-and-language navigation** model leveraging **transformer** architectures for intelligent mobile systems.
- Designed an interactive simulation experiment involving real test volunteers for vision-and-language navigation model evaluation.

PROFESSIONAL EXPERIENCE

Cidi.ai Changsha, Hunan, China
Algorithm Engineer *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 for enhanced vehicle control on highways and urban settings.
- Designed a robust target selection method and trajectory estimation algorithm for level-2 autonomous vehicles.
- Developed a Hidden Markov Model (HMM) vehicle action prediction algorithm based on radar, camera, LiDAR, and vehicular sensors.

Simulation Tool Design and Implementation
- Built simulation tools for control algorithm testing using Simulink, TruckSim, and ROS.
- Developed test automation tools with efficient pipelines for data processing, visualization, and model validation.

SKILL

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