

ShengAo (Shawn) WANG

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EDUCATION

Boston University Ph.D. System Engineering	Sep 2023-present
University of Michigan, Ann Arbor M.S. Robotics GPA 3.90/4.0	Sep 2020-Dec 2022
Zhejiang University B.E. Mechatronics Minor in Chu-Kochen Honor College GPA 3.93/4.0	Sep. 2016-Dec 2020

ACADEMIC RESEARCH

BabyVLM: Data-Efficient Pretraining of VLMs (ICCV 2025)	Aug 2024-present
▪ Led a research team of 10+ students to build a Vision Language Model (VLM) training pipeline from scratch	
▪ Conducted data cleaning and augmentation on SAYCam, a longitudinal ego-centric video dataset captured by infants	
▪ Developed BabyLLaVA, a compact VLM trained from scratch through multiple stages	
▪ Designed various novel evaluation benchmarks grounded in developmental psychology to assess small-scale VLM	
Sampling-based Model Predictive Control with Normalizing Flow	Jan 2022-Aug 2022
▪ Collected training data using MuJoCo for a robotic rope-manipulation task	
▪ Built a hierarchical Normalizing Flow to model stochastic world model dynamics	
▪ Implemented Model Predictive Path Integral (MPPI) motion planning based on the learned world model	
Fall Recovery for ANYmal Quadruped Robot	Jul 2019-Jun 2020
▪ Deployed Covariance Matrix Adaptation-Evolution Strategy (CMA-ES) to optimize the reference trajectory	
▪ Leveraged imitation learning and Proximal Policy Optimization (PPO) to implement the fall-recovery function	
▪ Achieved an 80% success rate across diverse initial fall configurations	

INDUSTRY EXPERIENCE

Autonomous Driving Algorithm Engineer DAMO Academy, Alibaba	Aug 2022-Apr 2023
▪ Added image patch fusion and temporal attention mechanism to the transformer-based backbone model of the planning module	
▪ Adapted to multiple downstream tasks, including trajectory prediction, scene understanding, and high-level decision making, using data collected from real-world scenarios	
▪ Implemented auto-labeling pipeline to generate high-quality trajectory data involving multi-agent interactions for large-scale model training	
▪ Implemented a perception branch module to recognize roadside maintenance zones from visual input	
Autonomous Driving Algorithm Intern XLab, Inceptio Tech.	Mar 2021-Aug 2021
▪ Combined D3QN and MCTS to implement a risk-aware trajectory planning demo in highway simulation	
▪ Integrated uncertainty measurement to achieve aggressive/conservative driving policy	
▪ Conducted a literature review on the application of Reinforcement Learning in autonomous driving	

PROFESSIONAL SKILLS

Programming Language: Python, C/C++, MATLAB, LabVIEW, Assembly, STM32, Arduino

Library: Pytorch, Deepspeed, Transformers, Gym, Pybullet, MuJoCo, RaiSim, Openrave, CARLA

Software: SolidWorks, AutoCAD, ANSYS, Multisim

PUBLICATION

- Wang, S., Chandra, A., Liu, A., Saligrama, V., & Gong, B. (2025). BabyVLM: Data-Efficient Pretraining of VLMs Inspired by Infant Learning. *International Conference on Computer Vision (ICCV)*.
- Guo, Z., Zhou, W., Wang, S., & Li, W. (2025). Constraint-Conditioned Actor-Critic for Offline Safe Reinforcement Learning. *International Conference on Learning Representations (ICLR)*.
- Wang, D., Gao, L., Lan Z., Li, W., Ren, J., Zhang, J., Zhang, P., Zhou, P., Wang, S., Pan, J., Manocha, D., & Yang, R. (2022). An Intelligent Self-Driving Truck System for Highway Transportation. *Frontiers in neurorobotics*.

AWARDS

Honorary Title of Outstanding Undergraduate	Jun 2020
Honorable Mention, 2020 MCM/ICM	Mar 2020
Zhejiang Provincial Government Scholarship (Top 1%)	Sep 2018