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*