Yilong Song

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Education

Brown University Providence, RI
Master of Science: Computer Science (AI/ML Pathway) *2025*
Grade Point Average: 4.0/4.0

Carleton College Northfield, MN
Bachelor of Arts: Computer Science, Mathematics (Distinction) *2023*
Grade Point Average: 3.8/4.0
"Exemplary" Writing Portfolio (sample)

Research

Imitation Learning with Precisely Labeled Human Demonstrations
Project Lead *September, 2024 – Present*
- Proposed robust and cost-effective method to extend current state-of-the-art data strategy for training robot manipulation policies.
- Designed, implemented (PyTorch) and experimented with multiple custom computer vision pipelines for model-based pose estimation, enabling precise and reliable end-effector pose estimation using partial point clouds.
- Demonstrated that such precisely labeled human demonstrations on their own allow policies to reach on average 88.1% of the performance of using robot demonstrations, and boost policy performance when combined with robot demonstrations on robosuite simulated precise manipulation tasks.

Visuomotor Policy Learning via Video Generation
Co-author *February – September, 2024*
- Trained and tested language-conditioned transformer/U-Net diffusion models for video generation.
- Developed functionalities for robosuite simulation framework enabling free adjustment of lighting, camera setup, MujoCo models etc. in existing video datasets.

Experience

The Intelligent Robot Lab **Brown University, RI**
Graduate Student Researcher *September, 2024 – Present*
- Contributed to research projects related to policy learning with actionless videos.

Software Engineering Internship **KEMET Corporation, CO**
Back-End Software Engineering Intern *July – August, 2022*
- Implemented error recovery mechanisms in MongoDB to detect transient failures—lead to enhancements in database availability and robustness.
- Wrote pedagogical guide for QAs to launch e2e testing migration to Cypress.

Skills

- Well-versed in state-of-the-art techniques for robotics, CV, and NLP.
- Advanced in Python, C++, PyTorch.