

LITIAN GONG

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RIVERSIDE, CA

EDUCATION

University of California, Riverside | GPA: 3.95

M.S. | Electrical Engineering

Sep 2024 - Present

Riverside, CA, USA

Huazhong University of Science and Technology (HUST)

B.E. | Electrical Engineering

Sep 2020 - Jun 2024

Wuhan, China

RESEARCH INTEREST

My research focuses on building **embodied intelligent agents** capable of learning robust, generalizable behaviors from data and interaction. I work at the intersection of (1) **scalable robot learning frameworks**, (2) **imitation and reinforcement learning**, and (3) **visual-language models** for long-horizon decision making. Ultimately, my goal is to enable agents to **reason over multimodal observations**, **acquire manipulation and navigation skills efficiently**, and **bridge the sim-to-real gap** for deployment in real-world autonomous systems, and develop trustworthy, data-efficient, and generalizable learning algorithms.

PUBLICATIONS & PREPRINTS

Litian Gong, Fatemeh Bahrani, Yutai Zhou, Amin Banayeeanzade, Jiachen Li, Erdem Bıyık, “AutoFocus-IL: VLM-based Saliency Maps for Data-Efficient Visual Imitation Learning without Extra Human Annotations”, *IEEE International Conference on Robotics and Automation (ICRA)*, 2026.

Zhaoyang Li*, Zhan Ling*, Yuchen Zhou, **Litian Gong**, Erdem Bıyık, Hao Su, “ORIC: Benchmarking Object Recognition in Incongruous Context for Large Vision-Language Models”, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2026.

Litian Gong, Jiaxuan Ren, Shuoyu Jin, Shaorong Wang, “A Friendly Grid-connected Distribution System with PV and ESS for Remote Rural Residential Family”, *IEEE International Conference on New Energy and Power Engineering (ICNEPE)*, 2023.

PATENTS

- **Litian Gong**, Shuoyu Jin, and Shaorong Wang, “A friendly grid-connected Grid-PV-ESS remote residential home power supply system and its working method”, in application.
- Shuoyu Jin, **Litian Gong** and Shaorong Wang, “Image recognition method and system based on network state index convolutional neural network set”, CN 116612338A, 2023.
- Shuoyu Jin, Shaorong Wang and **Litian Gong**, “Variable activation function convolutional neural network and training method thereof”, CN 114662678A, 2023.

RESEARCH EXPERIENCE

Learning and Interactive Robot Autonomy Lab

Advisor: Prof. Erdem Bıyık, USC

Jun 2025 - Present

Los Angeles, CA, USA

- **Augmented Visual Imitation Learning with Saliency Maps (Led project)**
 - Developed AutoFocus-IL, a VLM-guided saliency framework that enhances data efficiency and generalization in visual imitation learning without human gaze supervision.
 - Implemented context-aware object filtering and temporal saliency modeling using Qwen2.5-VL and Grounding DINO to identify and track task-relevant visual cues.
 - Integrated saliency-guided regularization into behavior cloning, improving policy robustness in CARLA simulation and real-robot (WidowX) experiments; paper accepted to ICRA 2026.
- **Benchmarking Object Recognition under Contextual Incongruity in Large Vision-Language Models**
Co-advisor: Prof. Hao Su, UCSD
 - Implemented RL fine-tuning for VLM and hyperparameter search, utilizing reward shaping to mitigate contextual incongruity and ensure more coherent, reliable visual reasoning; paper accepted to CVPR 2026.

Trustworthy Autonomous Systems Lab

Advisor: Prof. Jiachen Li, UC Riverside

Nov 2024 - Present

Riverside, CA, USA

- **Real-to-Sim-to-Real Regrasp Policy Learning by High-Fidelity Simulator Data Pipeline (Co-leading project)**
 - Reconstructed real scenes in IsaacLab for large-scale parallel sampling of robot-arm regrasp trajectories.
 - Designed data synthesis pipeline using stochastic sampling, Curobo motion planning, and graph algorithm.
 - Trained VLA policies purely from simulation for zero-shot sim-to-real transfer; aiming RSS 2026.
- **VLM-guided Desktop Disassembly Planning with Multi-turn RFT and Error-aware Feedback (Leading project)**
Co-advisor: Prof. Minghui Zheng, TAMU
 - Built VLM framework generating desktop disassembly sequences from multi-view images and state.
 - Implemented multi-turn RFT and error-aware feedback for self-correcting disassembly planning.
- **Simulation Environment and Hardware Development for Embodied AI (Led project)**
 - Indoor navigation framework integrating path planning, trajectory tracking, crowd simulation and ORCA collision avoidance. [\[code\]](#)
 - Developed VLM-based object grasping in cluttered desktop environments. [\[code\]](#)
 - Hesai Lidar sensor configuration. [\[code\]](#)
- **Adaptive Entropy Regularization for VLM Multi-turn Reinforcement Fine-tuning**
 - Designed an adaptive entropy regularization method for GRPO multi-turn VLM reinforcement learning.
 - Implemented a LoRA-based high-efficiency RFT pipeline by improving VeRL framework.
 - Improved Sokoban success rate from 54% to 98% with faster convergence; targeting ICML 2026.

Smart Grid Operation & Control Group

Sep 2021 - Jun 2024

Wuhan, China

Advisor: Prof. Shaorong Wang, HUST

- **Intelligent Inspection Algorithm for Substation Robots (Led project)**
 - Designed a DQN-based autonomous control policy for substation inspection robots, modeling two-wheel-drive kinematics and validating robust localization and trajectory tracking in Webots.
- **Photovoltaic and Energy Storage Grid-Connected System for Remote Rural Homes (Led project)**
 - Developed a Simulink-based control and planning framework for a modular PV–ESS hybrid distribution system with real-time PV optimization and phase-imbalance-tolerant three-phase inverter control.
- **Adaptive Neural Network Optimization for Image Recognition (Co-led project)**
 - Built an entropy-driven adaptive-depth CNN framework in PyTorch that selects network depth by image complexity and optimizes the accuracy–efficiency trade-off via genetic-algorithm-tuned polynomial heads.

ACADEMIC SERVICE

Conference Reviewer

- IEEE International Conference on Robotics and Automation (ICRA), 2026
- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2026

INDUSTRY EXPERIENCE

Intern Engineer

Jun 2022 - Sep 2022

Wuhan, China

Sifang Electric Co., Ltd

- Engineered electrical equipment layouts and computed line parameters for power substations.
- Developed single-line diagrams and schematic drawings using CAD software.
- Modeled and optimized photovoltaic systems for renewable energy substations.

HONORS & AWARDS

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| • Outstanding Undergraduate Graduate, HUST | 2024 |
| • Honorable Prize, Mathematical Contest In Modeling | 2023 |
| • Second Prize, China Undergraduate Mathematical Contest in Modeling | 2022 |

SKILLS

Programming & ML: Python, C/C++, Bash, Docker, Git, LaTeX, CUDA, PyTorch, JAX, MMCV, VeRL

Robotics & Simulation: ROS1/ROS2, IsaacLab, CARLA, ManiSkill, Habitat, MuJoCo, Gazebo, Webots

Hardware & Embedded: WidowX, TIAGo, Microcontrollers, PCB design

Language: English (Fluent), Chinese (Native)