Jinlong Li

Computer Vision | Deep Learning | Generative AI

🎓 **Google Scholar**   🌐 **Website**   in **Linkedin**

✉ lijinlong1117@gmail.com   📞 +1 234 339 0042

RESEARCH INTERESTS

- Generative AI and Multi-Modal LLM
- Computational Photography and Imaging
- End-to-end 2D/3D perception of autonomous driving

EDUCATION

Cleveland State University, Cleveland, USA   Ph.D. in Computer Science   Aug. 2021 - May. 2024
Ph.D., Research Field: Computer Vision, Domain Adaptation, Autonomous Driving. GPA: 3.64/4.0

Chang'an University, Xi'an, China   Master of Computer Science   Sep. 2018 - Jun. 2021
M.S., Research Field: Vehicle Detection, Intelligent Transportation System. GPA: 3.30/4.0

Chang'an University, Xi'an, China   Bachelor of Transportation Engineering   Sep. 2014 - Jun. 2018
B.S., Research Field: Road Crack Detecting. GPA: 3.50/4.0

PROFESSIONAL EXPERIENCE

InnoPeak Technology, Inc., CA, USA   Nov. 2024 - present
Senior Research Engineer in Computer Vision

Texas A&M University, TX, USA   Aug. 2024 - Dec. 2024
Postdoctoral Researcher in TACO-Group

InnoPeak Technology, Inc., CA, USA   May. 2024 - Aug. 2024
Research Intern in AI-Visual Enhancement and Understanding Team

SELECTED CONFERENCE PUBLICATIONS

Jinlong Li has co-authored **over 20 publications** in leading venues for computer vision and intelligent autonomous systems (CVPR, ICRA, T-IV, WACV, etc.). As of December 2024, his works have been **cited over 1,000 times** with an **h-index of 12**.

[1] **Jinlong Li**, Baolu Li, Zhengzhong Tu, Xinyu Liu, Qing Guo, Felix Juefei-Xu, Runsheng Xu, Hongkai Yu. "Light the Night: A Multi-Condition Diffusion Framework for Unpaired Low-Light Enhancement in Autonomous Driving." Proceedings of IEEE / CVF Computer Vision and Pattern Recognition Conference (**CVPR**), 2024. Top-tier Computer Science Conference

[2] **Jinlong Li**, Runsheng Xu, Xinyu Liu, Baolu Li, Qin Zou, Jiaqi Ma, Hongkai Yu. "S2R-ViT for multi-agent cooperative perception: Bridging the gap from simulation to reality." International Conference on Robotics and Automation (**ICRA**), 2024. Top-tier Robotics Conference

[3] **Jinlong Li**, Baolu Li, Xinyu Liu, Jianwu Fang, Felix Juefei-Xu, Qing Guo, Hongkai Yu. "AdvGPS: Adversarial GPS for Multi-Agent Perception Attack." International Conference on Robotics and Automation (**ICRA**), 2024. Top-tier Robotics Conference

[4] **Jinlong Li**, Baolu Li, Xinyu Liu, Runsheng Xu, Jiaqi Ma, Hongkai Yu. "Breaking Data Silos: Cross-Domain Learning for Multi-Agent Perception from Independent Private Sources." International Conference on Robotics and Automation (**ICRA**), 2024. Top-tier Robotics Conference

[5] **Jinlong Li**, Runsheng Xu, Jin Ma, Qin Zou, Jiaqi Ma, Hongkai Yu. "Domain Adaptive Object Detection for Autonomous Driving under Foggy Weather". Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), 2023. [Code:]

[6] Runsheng Xu, Xin Xia, **Jinlong Li**, Hanzhao Li, Shuo Zhang, Zhengzhong Tu, Zonglin Meng, Hao Xiang, Xiaoyu Dong, Rui Song, Hongkai Yu, Bolei Zhou, Jiaqi Ma. "V2V4Real: A large-scale real-world dataset for Vehicle-to-Vehicle Cooperative Perception". Proceedings of IEEE/CVF Computer Vision and Pattern Recognition Conference (**CVPR**), 2023. **Highlight (2.5% of 9155 submissions)** [Code:] Top-tier Computer Science Conference

[7] Runsheng Xu, **Jinlong Li**, Xiaoyu Dong, Hongkai Yu, Jiaqi Ma. "Bridging the domain gap for multi-agent perception". International Conference on Robotics and Automation (**ICRA**), 2023. [Code:] Top-tier Robotics Conference

[8] Xu, Runsheng, Hao Xiang, Xin Xia, Xu Han, **Jinlong Li**, Jiaqi Ma. "OPV2V: An Open Benchmark Dataset and Fusion Pipeline for Perception with Vehicle-to-Vehicle Communication". IEEE International Conference on Robotics and Automation (**ICRA**), 2022. [Code:] Top-tier Robotics Conference

[9] Huiming Sun, Lan Fu, **Jinlong Li**, Qing Guo, Zibo Meng, Tianyun Zhang, Yuewei Lin, Hongkai Yu. "Defense against Adversarial Cloud Attack on Remote Sensing Salient Object Detection." Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), 2024.

[10] Runsheng Xu, Zhengzhong Tu, Yuanqi Du, Xiaoyu Dong, **Jinlong Li**, Zibo Meng, Jiaqi Ma, Alan Bovik, and Hongkai Yu "Pik-Fix: Restoring and Colorizing Old Photo". Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), 2023. [Code:]

PREPRINTS

[1] **Jinlong Li**, J. Ma, Q. Guo, T. Zhang, Y. Lin, H. Yu. "RXFOOD: Plug-in RGB-X Fusion for Object of Interest Detection." IEEE Transactions on Multimedia (**TMM**), 2023. **under review Impact Factor=7.3** Top-tier Multimedia Journal

SELECTED CONFERENCE PUBLICATIONS

[1] **Jinlong Li**, unsheng Xu, Xinyu Liu, Jin Ma, Baolu Li, Qin Zou, Jiaqi Ma, and Hongkai Yu. "Domain Adaptation for Enhanced Object Detection in Foggy and Rainy Weather for Autonomous Driving." IEEE Transactions on Intelligent Vehicles (**TIV**), 2024. **Impact Factor=8.2** Top-tier Intelligent Vehicle Journal

[2] **Jinlong Li**, Runsheng Xu, Xinyu Liu, Jin Ma, Zicheng Chi, Jiaqi Ma, Hongkai Yu. "Learning for Vehicle-to-Vehicle Cooperative Perception under Lossy Communication". IEEE Transactions on Intelligent Vehicles (**TIV**), 2023. [Code:] **Impact Factor=8.2** Top-tier Intelligent Vehicle Journal

[3] Xinyu Liu, **Jinlong Li**, Jin Ma, Huiming Sun, Zhigang Xu, Tianyun Zhang, Hongkai Yu. "Deep Transfer Learning for Intelligent Vehicle Perception: a Survey." Green Energy and Intelligent Transportation (**GEIT**), 2023.

[4] Lan Fu, Hongkai Yu, Felix Juefei-Xu, **Jinlong Li**, Qing Guo, Song Wang. "Let There be Light: Improved Traffic Surveillance via Detail Preserving Night-to-Day Transfer". IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**), 2021. [Code] **Impact Factor=8.4** Top-tier Computer Journal

[5] **Jinlong Li**, Zhigang Xu, Lan Fu, Xuesong Zhou, Hongkai Yu.. "Domain adaptation from daytime to nighttime: A situation-sensitive vehicle detection and traffic flow parameter estimation framework". Transportation Research Part C: Emerging Technologies (**TR-C**), 2021. **Impact Factor=8.3** Top-tier Intelligent Transportation Journal

[6] Ying Gao*, **Jinlong Li***, Zhigang Xu, Zhangqi Liu, Xiangmo Zhao, Jianhua Chen. "A novel image-based convolutional neural network approach for traffic congestion estimation". Expert Systems with Applications (**ESWA**), 2021. ***Co-first author**

REVIEWER

1. **Journal Reviewer**: T-ITS, T-IV, T-VT, ESWA, IEEE Sensor Journal.

2. **Conference Reviewer**: ICRA-2024, WACV-2023, ICCV-2023, MIPR-2023, MIPR-2022.

ACADEMIC ACTIVITIES

1. Received the CSU Outstanding Achievement Award for Doctoral Research in Natural Sciences, Engineering. Spring 2024. [Link]

2. Being a guest lecturer&Teaching Assistant and of CIS694/EEC693/CIS593 Deep Learning in Cleveland State University, Spring 2024.

3. Invited talk for Cleveland State University & NSF MRI High Performance Computing Workshop, Fall 2023. [Link]

4. Being a guest speaker of CIS694/EEC693/CIS593 Deep Learning in Cleveland State University, Spring 2023.

5. Being a Judge for Choose Ohio First Symposium at Cleveland State University, in Spring 2022;

RESEARCH PROJECTS

Low Light Enhancement via Diffusion Model | *Research Assistant, EECS, CSU*   Aug 2023 - Dec 2023

- Background: With the rising prevalence of vision-centric perception systems relying on camera sensors, addressing safety concerns associated with low-light conditions has become imperative for ensuring overall vehicle safety.

- **Multi-Condition Diffusion Framework for Unpaired Low-Light Enhancement (CVPR2024):** Proposed a Diffusion model to enhance low-light camera images for autonomous driving, mitigating the need for extensive nighttime data collection and preserving daytime performance. Our method incorporates a novel multi-condition adapter that adaptively controls the input weights from different modalitiesto effectively illuminate dark scenes while maintaining context consistency.

Vision-centric perception system via transfer learning technology | *Research Assistant, EECS, CSU* May 2021 - Dec 2022

- Background: Addressing the challenge of limited labeled ground truths in nighttime images for deep learning models, this project aimed to enhance vehicle perception in challenging driving scenarios, such as nighttime, and foggy weather. Leveraging transfer learning technology, the objective was to maximize the use of labeled images to improve model performance.

- **Situation-Sensitive Vehicle Detection Framework (TR-C 2021):** Developed a framework for vehicle detection in both daytime and nighttime using labeled daytime images. Utilized CycleGAN as a style transfer technology to enhance model performance during nighttime conditions.

- **Night-to-Day Translation for Vehicle Detection (TCSVT 2021):** Introduced a detail-preserving Night-to-Day translation method for direct adaptation of daytime models to nighttime vehicle detection.

- **Unsupervised Domain Adaptation for Adverse Conditions (WACV 2023):** Proposed an unsupervised domain adaptation method for robust object detection in foggy and rainy conditions. Integrated AdvGRL and domain-level metric regularization for improved adaptability.

Cooperative 3D LiDAR Perception Deployment | *Research Assistant, EECS, CSU*   Nov 2022 - Sep 2023

- Background: Enhancing Cooperative Autonomous Vehicle (CAV) perception through V2V communication is crucial for improved detection performance. This project focused on real-world deployment, building dataset construction, Lossy Communication challenges, and addressing the domain gap between simulated and real data.

- **Pioneering Dataset Construction (ICRA 2022 & CVPR 2023):** Contributed to OPV2V, the first large-scale cooperative 3D LiDAR dataset, and as key contributor to V2V4Real, the first large-scale real-world V2V perception dataset.

- **Cutting-edge Cooperative Perception Research under Lossy Communication (TIV 2023):** Proposed the first research on V2V cooperative perception (point cloud-based 3D object detection) under lossy communication. Explored the impact of lossy communication on cooperative perception.

- **Simulation-to-Reality Transfer Learning (S2R-ViT):** Proposed the first Simulation-to-Reality transfer learning framework for multi-agent cooperative perception using a novel Vision Transformer, named as S2R-ViT. Addressed Deployment Gap and Feature Gap between simulated and real data.

Robotic-Assisted Feeding Project of ODHE | *Research Assistant, EECS, CSU*   Sep 2021 - May 2022

- Objective: To develop methods enabling individuals with high tetraplegia to control aspects of helper robot reaching movements, incorporating motion planning, computer vision, and related technologies.

- **Vision-Based Detection System Development:** Led the development of a vision-based detection system for various foods within the Robotic-Assisted Feeding project. Defined food item characteristics to determine required actions, addressing different angles of food presentation. Implemented data augmentation for enhanced model generalization.