Yuheng Wu

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Education

KAIST (Korea Advanced Institute of Science and Technology), Republic of Korea

2025.09 - 2028 (expected) Advisor: Prof. Dongman Lee

Ph.D. candidate in School of Computing

• Research field: Agentic Autonomous Driving, World (Action) Model for Driving

KAIST (Korea Advanced Institute of Science and Technology), Republic of Korea

2023.09 - 2025.07

Master in School of Computing

Advisor: <u>Prof. Dongman Lee</u>

Advisor: Prof. Chenhong Cao

• Research field: AI for Multimedia Delivery System

• Thesis: How2Compress: Scalable and Efficient Edge Video Analytics via Adaptive Granular Video Compression

Shanghai Unviersity, China

2019 - 2023

B.Eng in Computer Science & Cyber Security

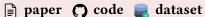
• GPA: 3.83/4.0 (94.3/100), Rank: 1/27

• Thesis: The Design and Implementation of Configuration-Adaptive Iot Streaming with Deep Reinforcement Learning

Publication/Preprints







Agentic Autonomous Driving (Egocentric/Collaborative)

[1] Background Fades, Foreground Leads: Curriculum-Guided Background Pruning for Efficient Foreground-**Centric Collaborative Perception**

Under review of ICRA, 2026



Yuheng Wu, Xiangbo Gao, Nhat-Quang Tau, Zhengzhong Tu, Dongman Lee

• introduce FadeLead, a novel framework that leverages curriculum learning to encapsulate background context into shared foreground features, boosting the performance of collaborative perception in autonomous driving

[2] SafeCoop: Unravelling Full Stack Safety in Agentic Cooperative Driving

Under review of ICLR, 2026



Xiangbo Gao, Tzu-Hsiang Lin, Ruojing Song, Yuheng Wu, Kuan-Ru Huang, Zicheng Jin, Fangzhou Lin, Shinan Liu, Zhengzhong Tu

• SafeCoop explores safe and trustworthy language-driven collaborative driving and develops an agentic defense framework for secure V2X communication.

[3] AirV2X: Unified Air-Ground Vehicle-to-Everything Collaboration

Under review of ICLR, 2026





Xiangbo Gao, Yuheng Wu, Fengze Yang, Xuewen Luo, Keshu Wu, Xinghao Chen, Yuping Wang, Chenxi Liu, Yang Zhou, Zhengzhong Tu

• introduce *AirV2x*, a unified aerial-assisted autonomous driving systems.

[4] LangCoop: Collaborative Driving with Language

CVPR 2nd Workshop on Multi-Agent Embodied Intelligent Systems [Best Paper Award], 2025



Xiangbo Gao, Yuheng Wu, Rujia Wang, Chenxi Liu, Yang Zhou, Zhengzhong Tu

• introduce LangCoop, a new paradigm for collaborative autonomous driving that leverages natural language as a compact yet expressive medium for inter-agent communication

Multimedia Delivery System

[1] How2Compress: Scalable and Efficient Edge Video Analytics via Adaptive Granular Video Streaming

ACM Multimedia (MM), 2025



Yuheng Wu, Thanh-Tung Nguyen, Lucas Liebe, Nhat-Quang Tau, Pablo Espinosa Campos, Jinghan Cheng, Dongman Lee

• Developed a fine-grained QP assignment scheme for video compression, optimized for object detection in urban surveillance. It is integrated into the H.264 codec, achieving up to 50.4% bitrate savings with less than 2% accuracy degradation.

[2] OctopInf: Workload-Aware Inference Serving for Edge Video Analytics

International Conference on Pervasive Computing and Communications (Percom), 2025 Thanh-Tung Nguyen, Lucas Liebe, Nhat-Quang Tau, <u>Yuheng Wu</u>, Jinghan Cheng, Dongman Lee



[3] OctoCross: Workload-Aware Request Offloading Scheduling in Cross-Camera Collaboration
International Conference on Service Oriented Computing (ICSOC), 2025
Jinghan Cheng, Thanh-Tung Nguyen, Lucas Liebe, Yuheng Wu, Nhat-Quang Tau, Pablo Espinosa Campos, Dongman Lee

[4] ApisRL: Parameter Adaptation Feedback for Multi-Objective Reinforcement Learning in Independent Multi-Agent Systems

Under review of AAMAS, 2025

Lucas Liebe, Thanh-Tung Nguyen, <u>Yuheng Wu</u>, Dongman Lee

Research/Internship Experience

Neural Adaptive Live Video Analytics with Deep Reinforcement Learning

2022/06 - 2023/02

Advisor: Prof. Chenhong Cao

Intern at INSS Lab

- Developed a simulation framework for RL-based video streaming configuration, optimizing (framerate, QP, resolution, and offloading target) across multi-source devices and edge clusters.
- Simulate network bandwidth through <u>Mahimahi</u> and enable fast-training by pre-profiling video statistics (compression efficiency improvement of different configuration knobs).

Awards & Honors & Funds

KAIST Scholarship 2023-2028

• Full scholarship awarded for academic studies

Academic Distinction Scholarship

2020 & 2021 & 2022

· Awarded for outstanding academic achievement during the academic year. Dean List

AI-Based Educational Environment Innovation Project

2024.08-2024.12

- Develop LLM-based Portal System for KAIST students
- Funded by KAIST with 10,000,000 KRW

Technical Skills

- Programming: python, C/C++11, golang(v1.19), rust(v1.76)
- Languages: Chinese (Native), English (Fluent), Korean (Beginner), Japanese (Intermediate)