Yuheng Wu

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Education

KAIST (Korea Advanced Institute of Science and Technology), Republic of Korea — 2025.09 – 2028 (expected)
Ph.D. candidate in School of Computing — Advisor: Prof. Dongman Lee
- 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: Prof. Dongman Lee
- 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 — Advisor: Prof. Chenhong Cao
- 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

paper **code** **dataset**

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, **Yuheng Wu**, 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, **Yuheng Wu**, Dongman Lee*

Research/Internship Experience

Neural Adaptive Live Video Analytics with Deep Reinforcement Learning 2022/06 – 2023/02
Intern at INSS Lab Advisor: Prof. Chenhong Cao

- 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 Mahimahi 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)