Chenglong Yu

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EDUCATION

Institute of Computing Technology, Chinese Academy of Sciences (ICT, CAS) Beijing, China

Master of Engineering in Electronic Information Sep. 2024 –Expected Jun. 2027

Admitted with exemption from the national graduate entrance examination (Ranked 1st in class, 4th in major)

China University of Petroleum (East China) Qingdao, China

Bachelor of Engineering in Computer Science and Technology Sep. 2020 –Jun. 2024

GPA: 4.1/5 | **Rank:** 4/116(Top 4%)

RESEARCH INTEREST

Knowledge Distillation, Diffusion Models, Reinforcement Learning, World Models, Resource Allocation

RESEARCH EXPERIENCE

Joint Task Offloading and Resource Allocation with Multi-Task Energy Control based on World Model-Guided Collaborative Multi-Agent Deep Reinforcement Learning

Independent Research Dec. 2023 - Present

- **Proposed** a physics-based energy prediction model with error correction to achieve long-term energy control for Industrial Internet of Things (IIoT) mobile terminals, directly addressing the limitations of existing short-term control methods.
- **Formulated** a joint optimization framework encompassing task offloading, communication, and computation resource allocation to maximize overall terminal energy efficiency.
- **Developed** a World Model-guided Collaborative Multi-Agent Deep Reinforcement Learning (MARL) algorithm to solve the complex optimization problem and stabilize the learning process.
- **Achieved** a 66% improvement in convergence speed; drastically outperformed short-term energy control baselines by increasing the number of completed tasks by 2.4 times and boosting energy efficiency by 6.4 times.

Diffusion Model-based Data-Free Knowledge Distillation

Independent Research Aug. 2025 - Present

- **Identified** the inefficiency of sample synthesis in current Data-Free Knowledge Distillation (DFKD) and proposed a novel diversity- and difficulty-guided synthesis strategy.
- **Utilized** multi-layer statistical data extracted from the teacher model to rigorously constrain inter-class diversity, intra-class diversity, and generation difficulty, thereby ensuring the generation of highly informative synthetic samples.
- **Engineered** the algorithmic implementation by adapting the Fast-DFKD (AAAI 2022) codebase.
- **Demonstrated** consistent empirical gains, improving the distilled student model's accuracy by 1.30%–1.83% on CIFAR-10 and 1.68%–3.95% on CIFAR-100 compared to the Fast-DFKD.

PUBLICATIONS & PATENTS

- **C.Yu**, W. Xing, J. Shi, Y. Zhou and L. Liu, "Collaborative Multi-Agent Deep Reinforcement Learning for Joint Task Offloading and Resource Allocation with Long Term Energy Control," 2025 IEEE 102nd Vehicular Technology Conference (VTC2025-Fall), Chengdu, China, 2025, pp. 1-5. [pdf]
- H. Li, H. Yu, Y. Zhou, **C. Yu**, H. Shi, N. Shi and J.Shi, "Proactive Channel-Semantic Adaptive JSCC for Robust Image Transmission in High-Mobility OFDM System," 2026 IEEE International Conference on Communications (ICC2026), Glasgow, Scotland, UK, 2026.
- Y. Zhou, **C. Yu**, J. Shi, Y. Qi, W. Xing, and L. Liu, "An Industrial Internet System for Resource Allocation Based on Collaborative Multi-Agents." Chinese National Invention Patent, Patent No.: CN202511002125.2.
- D. Tan, **C. Yu**, Y. Zhou, L. Liu, and J. Shi, "A Data Aggregation Method and System for Wireless Ad Hoc Networks." Chinese National Invention Patent, Patent No.: CN202411514682.8.
- Y. Wu, **C. Yu**, Y. Zhou, Q. Cai, and J. Shi, "An Integrated Sensing and Communication (ISAC) Distributed UAV Communication System and Method." Chinese National Invention Patent, Patent No.: CN202411526483.9.

HONORS & AWARDS

- Outstanding Graduate of Shandong Province - 2024
- National Encouragement Scholarship (Three times) - 2021, 2022, 2023
- UCAS Academic Scholarship (Twice) - 2024, 2025
- Honors Bachelor's Degree, China University of Petroleum (East China) - 2024

TECHNICAL SKILLS

- **Technology stack:** Python, C, C++, Pytorch, Linux, Git, CUDA
- **English:** CET-6: 447