

# CHENGLONG YU

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## EDUCATION

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

Master of Engineering in Computer Technology Sep. 2024 – Expected Jun. 2027

**China University of Petroleum (East China)** Qingdao, China

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

**GPA:** 4.12/5 | **Rank:** 3/114 (Top 3%)

## RESEARCH INTEREST

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

## RESEARCH EXPERIENCE

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### 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 - Nov. 2025

- **Proposed** a multi-task energy control constrained joint optimization scheme for the task offloading and resource allocation (MEC-JTORA) to maximize the terminal energy efficiency.
- **Designed** an error-corrected energy consumption model (ECECM) to allocate appropriate energies to tasks.
- **Developed** a World Model-guided Collaborative Multi-Agent Deep Reinforcement Learning (WM-MADRL) algorithm, leveraging the world model to accelerate convergence and guide policy exploration.
- **Achieved** a 36%~89% improvement in convergence speed over baseline algorithms, and increased the total size of completed tasks and energy efficiency by 4~9 times compared to systems with equal energy allocation.

### Sample-Efficient Data-Free Knowledge Distillation

Independent Research Aug. 2025 - Present

- **Proposed** a diversity- and difficulty-guided sample synthesis method to tackle the inefficiency of current Data-Free Knowledge Distillation (DFKD).
- **Designed** a batch-based feature repulsion mechanism to guarantee the intra-class diversity of synthetic samples, and introduced a sub-optimal class boosting strategy to ensure sample difficulty.
- **Integrated** the proposed method into the Fast-DFKD (AAAI 2022), improving the accuracy of the distilled student models by 1.30%~1.83% on CIFAR-10 and 1.68%~3.95% on CIFAR-100.

## PUBLICATIONS & PATENTS

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- 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.

## HONORS & AWARDS

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- 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

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- **Technology stack:** Python, C, C++, Pytorch, Linux, Git, CUDA