Checheng Yu

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EDUCATION BACKGROUND

09/2021-07/2025(expected)	School of management and engineering,	Nanjing University, Nanjing, China
	B.S in Engineering of Automation, Overall Score: 90.2/100, Ranking: 2/34	
09/2018-06/2021	Bailuzhou High School of Ji'an City (Senior)	
09/2015-06/2018	Bailuzhou High School of Ji'an City (Junior)	
09/2009-06/2015	Ji'an Normal Affiliated Primary School	

RESEARCH INTEREST

Reinforcement Learning and Robotics

AWARDS/HONORS/SCHOLARSHIPS/MEMBERSHIP

12/2020 2nd Prize of Chinese Mathematics Olympiad (Provincial Competition Area)
11/2022 Second Prize, People's Scholarship
11/2023 Second Prize of Chinese Educational Robot Contest
11/2023 Second Prize, People's Scholarship
12/2023 Outstanding Student

JOURNAL PUBLICATIONS

[1]. Yuxiang Sun, Junjie Zhao, **Checheng Yu**, Wei Wang, Xianzhong Zhou. Self Generated Wargame AI: Double Layer Agent Task Planning Based on Large Language Model, arXiv:2312.01090

[2]. Junjie Zhao, **Checheng Yu,** Yuxiang Sun, Xianzhong Zhou, Towards a New Paradigm of Wargame Decision-Making: Humanware based Approach(working paper)

RESEARCH EXPERIENCES

- Oct. 2023-Dec.2023 Nanjing, China
  Advisor: Dr. Yuxiang Sun Complex system cognition and decision making laboratory

Generative Wargame AI Based on Large Language Model

- Connected the API of ChatGPT with wargame environment
- Collected the observation of environment and trained the prompts as input for GPT to make decision
- Built the communication mechanism among agents using the well-trained prompts

➢ Oct. 2022-Oct.2023 Nanjing, China

Advisor: Dr. Yuxiang Sun Complex system cognition and decision making laboratory

Multi-attribute Decision Making in Conjunction with Deep Reinforcement Learning in A Wargame Environment

- Built an AC framework and tested the performance of several traditional reinforcement learning algorithms (DQN, PPO) in a self-designed wargame environment
- Extracted data from the wargame environment as threat assessment of opposite chess piece, normalized each attribute by multi-attribute decision making method, then calculate each attribute's weight by using the CRITIC method for weighted summation.
- Set the reward function by using the normalized data in the RL pre-training module and compared with reward calculated by the critic network to update the parameters
- Combined the multi-attribute decision making method with A3C and test its performance (winning rate)

PROFESSIONAL SKILLS

Programming Language: Experienced in C/C++, Python

Tools and Libraries: Tensorflow, PyTorch, Gym, Git, OpenCV, ROS