

Yaru Niu

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EDUCATION

Carnegie Mellon University

Ph.D. in Mechanical Engineering, Safe AI Lab

Advisor: Prof. Ding Zhao

Pittsburgh, PA

Aug. 2022 – Present

Georgia Institute of Technology

M.S. in Electrical and Computer Engineering, CORE Robotics Lab

Advisor: Prof. Matthew Gombolay

Atlanta, GA

Aug. 2019 – April 2022

South China University of Technology (SCUT)

B.Eng. in Intelligence Science and Technology

Advisor: Prof. Zhijun Zhang

Guangzhou, China

Sep. 2015 – June 2019

University of California, Irvine

Visiting Student in the Department of EECS

Irvine, CA

June 2018 – Aug. 2018

University of California, Berkeley

Exchange Student, Concentration in Computer Science

Berkeley, CA

Aug. 2018 – Dec. 2018

PUBLICATIONS

(* indicates equal contributions)

1. **Yaru Niu**, Shiyu Jin*, Zeqing Zhang*, Jiacheng Zhu, Ding Zhao, Liangjun Zhang. GOATS: Goal Sampling Adaptation for Scooping with Curriculum Reinforcement Learning. *International Conference on Intelligent Robots and Systems (IROS)*, 2023.
2. Mengdi Xu, Peide Huang, **Yaru Niu**, Visak Kumar, Jieliu Qiu, Chao Fang, Kuan-Hui Lee, Xuewei Qi, Henry Lam, Bo Li, Ding Zhao. Group Distributionally Robust Reinforcement Learning with Hierarchical Latent Variables. *International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2023.
3. Lingfeng Sun*, Chen Tang*, **Yaru Niu**, Enna Sachdeva, Chiho Choi, Teruhisa Misu, Masayoshi Tomizuka, Wei Zhan. Domain Knowledge Driven Pseudo Labels for Interpretable Goal-conditioned Interactive Trajectory Prediction. *International Conference on Intelligent Robots and Systems (IROS)*, 2022.
4. **Yaru Niu**. Adaptable and Scalable Multi-Agent Graph-Attention Communication. *Master's Thesis, Georgia Institute of Technology*, 2022.
5. Rohan Paleja*, **Yaru Niu***, Andrew Silva, Chace Ritchie, Sugju Choi, Matthew Gombolay. Learning Interpretable, High-Performing Policies for Autonomous Driving. *Robotics: Science and Systems (RSS)*, 2022.
6. **Yaru Niu***, Rohan Paleja*, Matthew Gombolay. Multi-Agent Graph-Attention Communication and Teaming. *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2021 (**Oral**).
7. **Yaru Niu***, Rohan Paleja*, Matthew Gombolay. MAGIC: Multi-Agent Graph-Attention Communication. *Mair2 Workshop at International Conference on Computer Vision (ICCV)*, 2021 (**Best Paper Award**).
8. Zhijun Zhang*, **Yaru Niu***, Ziyi Yan, Shuyang Lin. Real-time Whole-body Imitation by Humanoid Robots and Task-oriented Teleoperation Using an Analytical Mapping Method and Quantitative Evaluation. *Applied Sciences (Special Issue Human-Friendly Robotics, Impact Factor: 2.217)*, 2018.
9. Zhijun Zhang, **Yaru Niu**, Shangen Wu, Shuyang Lin, Lingdong Kong. Analysis of Influencing Factors on Humanoid Robots' Emotion Expressions by Body Language. *International Symposium on Neural Networks (ISNN), Lecture Notes in Computer Science (LNCS)*, Springer, 2018.
10. Zhijun Zhang, Lingdong Kong, **Yaru Niu**. A Time-Varying-Constrained Motion Generation Scheme for Humanoid Robot Arms. *International Symposium on Neural Networks (ISNN), Lecture Notes in Computer Science (LNCS)*, Springer, 2018.

PREPRINTS

(* indicates equal contributions)

1. Rohan Paleja*, Letian Chen* **Yaru Niu***, Andrew Silva, Zhaoxin Li, Songan Zhang, Chace Ritchie, Sugju Choi, Kimberlee Chestnut Chang, Hongtei Eric Tseng, Yan Wang, Subramanya Nagesh Rao, Matthew Gombolay. Learning Interpretable, High-Performing Policies for Continuous Control. Submitted to *Journal of Machine Learning Research (JMLR)*, 2023.
2. Yuyou Zhang, **Yaru Niu**, Xingyu Liu, Ding Zhao. COMPOSER: Scalable and Robust Modular Policies for Snake Robots. *arXiv Preprint*, 2023.
3. Lingdong Kong, **Yaru Niu**, Shaoyuan Xie, Hanjiang Hu, et al. The RoboDepth Challenge: Methods and Advancements Towards Robust Depth Estimation. *arXiv Preprint*, 2023.
4. Zhijun Zhang (PI), Lingdong Kong, **Yaru Niu**, Ziyang Liang. Modification of Gesture-Determined-Dynamic Function with Consideration of Margins for Motion Planning of Humanoid Robots. *arXiv Preprint*, 2020.

PATENTS

1. Zhijun Zhang, **Yaru Niu**. A Mapping Method of Human Postures Applied to Motion Imitation by Humanoid Robots (Translated from Chinese). *Published Authorization Number: CN107953331B*.
2. Zhijun Zhang, **Yaru Niu**. A Similarity Evaluation Method of Imitation by Humanoid Robots (Translated from Chinese). *Published Authorization Number: CN107818318B*.
3. Zhijun Zhang, **Yaru Niu**, Hao Wang. A Mapping Method of Human Body's Rotation and Displacement Applied to Humanoid Robots (Translated from Chinese). *Published Authorization Number: CN108858188B*.
4. Zhijun Zhang, **Yaru Niu**, Hao Wang. An Evaluation Metric of Humanoid Robot and Human Posture Similarity (Translated from Chinese). *Published Application Number: CN109064486A*.

RESEARCH EXPERIENCE

Baidu Research	Jan. 2022 – July 2022
<i>Research Intern, Robotics and Autonomous Driving Lab (RAL)</i>	<i>Advisor: Dr. Liangjun Zhang</i>
University of California, Berkeley	July 2021 – Feb. 2022
<i>Research Intern, Mechanical Systems Control (MSC) Lab</i>	<i>Advisor: Prof. Masayoshi Tomizuka</i>
Georgia Institute of Technology	Jan. 2020 – May 2022
<i>Graduate Research Assistant, Cognitive Optimization and Relational Robotics Lab</i>	<i>Advisor: Prof. Matthew Gombolay</i>
South China University of Technology	Aug. 2016 – June 2019
<i>Undergraduate Researcher, Bionic Intelligent Robot (BIR) Lab</i>	<i>Advisor: Prof. Zhijun Zhang</i>
University of California, Irvine	Summer 2018
<i>Undergraduate Researcher, Advanced Integrated Cyber-Physical Systems (AICPS) Lab</i>	<i>Advisor: Prof. Al Faruque</i>

TEACHING EXPERIENCE

CS 4731/7632 Game Artificial Intelligence	June 2020 – Dec. 2020
<i>Graduate Teaching Assistant, Georgia Institute of Technology</i>	<i>Instructor: Dr. Stephen Lee-Urban</i>
CS 4641 Machine Learning	Jan. 2021 – May 2021
<i>Graduate Teaching Assistant, Georgia Institute of Technology</i>	<i>Instructor: Prof. Nakul Gopalan</i>

HONORS & AWARDS

Best Paper Award , ICCV 2021 Mair2 Workshop (top 1)	Oct. 2021
AAMAS 2021 Scholarship	Feb. 2021
National Motivational Scholarship , awarded by Ministry of Education of China (rank 2/51)	Nov. 2016, Nov. 2018
The Jetta Scholarship , awarded by Jetta Company Limited (rank 3/51)	Dec. 2017
2nd Prize in China Undergrad. Math. Contest in Modeling (CUMCM) (top 5% in SCUT)	Oct. 2017
1st Prize of Guangdong Province in CUMCM (top 5% in SCUT)	Oct. 2017

ACADEMIC SERVICE

Reviewer: RA-Letters, AISTATS 2022-2024, ICRA 2024, IROS 2022-2023, MRS 2023, WAFR 2022

Program Committee: NeurIPS 2022 Workshop on Machine Learning for Autonomous Driving (ML4AD), ML4AD 2023 Symposium, NeurIPS 2023 Workshop on Foundation Models and Decision Making

Organizer: ICRA 2023 RoboDepth Challenge