

# Yaru Niu

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## EDUCATION

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### 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 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

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(\* 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, Jieli 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

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(\* 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. 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

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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

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

## TEACHING EXPERIENCE

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

## HONORS & AWARDS

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

## ACADEMIC SERVICE

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**Reviewer:** RA-Letters, AISTATS 2022-2023, IROS 2022-2023, WAFR 2022  
**Program Committee:** NeurIPS 2022 Workshop on ML4AD, NeurIPS 2023 Workshop on ML4AD, MRS 2023  
**Organizer:** ICRA 2023 RoboDepth Challenge