Yaru Niu

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EDUCATION

Carnegie Mellon University   Pittsburgh, PA
Ph.D. in Mechanical Engineering, Safe AI Lab   *Aug. 2022 – Present*
Advisor: Prof. Ding Zhao

Gerogia Institute of Technology   Atlanta, GA
M.S. in Electrical and Computer Engineering, CORE Robotics Lab   *Aug. 2019 – April 2022*
Advisor: Prof. Matthew Gombolay

South China University of Technology (SCUT)   Guangzhou, China
B.Eng. in Intelligence Science and Technology   *Sep. 2015 – June 2019*
Advisor: Prof. Zhijun Zhang

University of California, Irvine   Irvine, CA
Visiting Student in the Department of EECS   *June 2018 – Aug. 2018*

University of California, Berkeley   Berkeley, CA
Exchange Student, Concentration in Computer Science   *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, Jielin 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 Nageshrao, 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

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

Teaching Experience

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

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, IROS 2022-2023, MRS 2023, WAFR 2022
Program Committee: NeurIPS 2022 Workshop on ML4AD, NeurIPS 2023 Workshop on ML4AD
Organizer: ICRA 2023 RoboDepth Challenge