# Qinjie Lin

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## EDUCATION

**Department of Computer Science, Northwestern University**            09/2020 - Present
- ✧ PhD in progress, Computer Science
  Advisor: Han Liu

**Department of Computer Science, Northwestern University**            09/2018 - 06/2020
- ✧ Master of Science, Computer Science
  Advisor: Han Liu        GPA: **3.87/4.0**

**Department of Computer Science and Engineer, South China University of Technology**   09/2014 - 06/2018
- ✧ Bachelor of Engineering, Computer Science and Technology
  Advisor: Sheng Bi        GPA: **3.74/4.0**        Ranking: top10%

## PUBLICATIONS

- ✧ **RoboFlow: a Data-centric Workflow Management System for Developing AI-enhanced Robots**

  *Qinjie Lin\*, Guo Ye\*, Jiayi Wang, Han Liu*

  5th Annual Conference on Robot Learning, Blue Sky Submission Track. (CoRL)

- ✧ **RobLAX: A Differentiable Robotics Framework for Physics Augmented Reinforcement Learning**

  *Guo Ye\*, Qinjie Lin\*, Tim Tsz-Kit Lau, Wanxin Jin, Haozheng Luo, Zhuoran Yang, Cheng Zhou, Zhaoran Wang, Han Liu*

  Working on submission to Arxiv

- ✧ **JBDL: A JAX-Based Body Dynamics Algorithm Library forRobotics.**

  *Cheng Zhou, Lei Han, Yuzhu Mao, Guo Ye, Qinjie Lin, Wenbo Ding, Han Liu, Zhaoran Wang, Zhengyou Zhang*

  Working on submission to Arxiv

- ✧ **Collision-free Navigation of Human-centered Robots via Markov Games**

  *Guo Ye∗, Qinjie Lin∗, Tzung-Han Juang, Han Liu*

  Published on The 2020 International Conference on Robotics and Automation. (ICRA)

- ✧ **Indoor Mapping Using GMapping on Embedded System**

  *Qinjie Lin, Zhaowu Ke, Sheng Bi\*,Sirui Xu, Yuhong Liang, Fating Hong, Liqian Feng*

  Published on IEEE International Conference on Robotics and Biomimetics. (ROBIO)

- ✧ **Learning to Plan in High Dimensions via Neural Exploration-Exploitation Trees**

  *Binghong Chen, Bo Dai, Qinjie Lin, Guo Ye, Han Liu, Le Song*

  Published on The 2020 International Conference on Learning Representations. (ICLR)

- ✧ **Optimization of Robot Path Planning Parameters Based on Genetic Algorithm**

  *Yuhong Liang, Fating Hong, Qinjie Lin, Liqian Feng, Sheng Bi*

  Published on IEEE International Conference on Real-time Computing and Robotics. (RCRA)

- ✧ **A Global Localization System for Mobile Robot Using LIDAR Sensor**

  *Liqian Feng, Sheng Bi\*, Min Dong, Fating Hong, Yuhong Liang, Qinjie Lin and Yunda Liu*

  Published on The 9th IEEE International Conference on CYBER Technology in Automation, Control, and Intelligent Systems (IEEE-CYBER)

## Selected Experience

**Machine Learning Research Intern, Zebra Tech**                    09/2021 - Present

✧ Focus on developing and applying emerging edge sensing, artificial intelligence, and work-flow optimization technologies in innovative end-to-end system prototypes to solve real-world problems.

**Research Assistant @MAGICS Lab, Northwestern University**                    01/2019 - Present

✧ Conducted several Robotics projects including but not limited to:

**RobLAX: Differentiable Robotics Framework for Physics Augmented Reinforcement Learning.** We develop a JAX-implemented framework that augments model-based reinforcement learning with a fully differentiable robotics simulation.

**RoboFlow: a Data-centric Workflow Management System for Developing AI-enhanced Robots:** We propose RoboFlow, a cloud-based workflow management system orchestrating the pipelines of developing AI-enhanced robots. We develop two prototype systems named "Egomobility" and "Egoplan". The work will be published on **2021 CoRL**.

**JBDL: a JAX-Based Body Dynamics Algorithm Library for Robotics.** We develop a JAX-Based body dynamics algorithm library for rigid body dynamics. This library contains a highly efficient python library that contains some essential rigid body dynamics algorithms.

**Collision-free Navigation of Human-centered Robots:** Exploit Markov games as a framework for collision-free navigation of human-centered robots. Develop a path-following type adversarial training strategy to learn a robust decentralized collision avoidance policy. Publish the work on **2020 ICRA**.

**Motion Plan on high-dimension spaces via NEXT:** Propose a meta path planning algorithm named Neural Exploration-Exploitation Trees (NEXT) for learning from prior experience for solving new path planning problems in high dimensional continuous state and action spaces. Accepted on **2020 ICLR**.

**Research Assistant @ SCUT Robot Lab, South China University of Technology**                    07/2015 - 06/2018

✧  Conducted several Robotics projects including but not limited to:

**Robot's Autonomous Navigation Technology Based on Cheap Laser Sensors:** Propose adopting the genetic algorithm to select more properly parameters for local path planning of mobile robot. Publish the work on the **2017 RCRA**.

**Mapping Technology of the Embedded Platform-based Intelligent Robot**: Improve performance in time consumption and CPU consumption by designing and implementing a mapping system based on Embedded platform. Publish the work on **2017 ROBIO**.

## Computer Skills

✧ Computer languages: Python, Matlab, C++, C, R Java, Android,

✧ Skills: Ray, Jax, PyTorch, ROS, Docker, Kubernetes, Gazebo, Pybullet, OpenRave, V-Rep, Unity