

# Xinye Xiong

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## Education

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### Shanghai Jiao Tong University

*Master of Applied Statistics*

Sep 2021 - June 2023

*Cum. GPA. 3.63/4.0*

### Southern University of Science and Technology

*Bachelor of Mathematics and Applied Mathematics*

Sep 2017 - Jun 2021

*Cum. GPA. 3.82/4.0*

## Research Experience

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### Multi-Robot System

Sep 2022 - Present

*The Intelligent Robotics and Machine Vision Lab*

*Shanghai, China*

- An integrated task assignment, path planning, and coordination problem was applied for large-scale robot networks with uncertainties, reaching multiple objectives.
- During multi-robot task allocation, prioritize tasks with significant influence on the entire system and formulate the problem of critical subset identification mathematically and statistically.
- Apply traffic flow learning to enhance large-scale Multi-Robot cooperative path planning under uncertainties.

### Graph Neural Network

Sep 2021 - Apr 2023

*Shanghai Jiao Tong University*

*Shanghai, China*

- To address the sparsity of mutation datasets, design a graph denoising model to locate the best one or more mutation site(s) on proteins.
- Effectively reduce the cost of cancer diagnosis by integrating CNN and GNN to design a stomach disease detection model.
- Present a comprehensive review of biological molecules' representations, systems' representations, and geometric deep learning models at different levels.

### Computer Vision

Sep 2020 - Jan 2022

*Southern University of Science and Technology*

*Shenzhen, Guangdong, China*

- Traffic Sign Detection and Recognition: Detect the locations of traffic signs in a video and identify their meaning in real time.
- Auto Color: Apply GAN to change the colors of different objects in a single image

### Differential Equation

Sep 2019 - Jun 2021

*Southern University of Science and Technology*

*Shenzhen, Guangdong, China*

- Numerical Calculation on Fluid Partial Differential Equations.
- Ordinary Differential Equations on Infectious Disease Model: Build multiple ODE models to predict the number of people infected by different infectious diseases and make COVID-19 predictions.

### Photoacoustic Imaging

Jun 2018 - Oct 2018

*Southern University of Science and Technology*

*Shenzhen, Guangdong, China*

## Intern Experience

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### AI Software Intern

Oct 2021 - Mar 2022

*Taize Chiptech*

*Shanghai, China*

- ResNet-18 on FPGA: Design essential forward propagation functions and stack them to run on FPGA.
- VLIW Compiler Development: Cooperate with fulfilling AI operator library in assembly language.
- Fixed Issue: ResNet-18 running results on FPGA were inconsistent with those generated by PyTorch.

## Publications

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- Xinye Xiong, Xingyao Han, Zhe Liu, Hesheng Wang, “Exhaustiveness Does Not Necessarily Mean Better: Selective Task Planning for Multi-robot Systems.” *2023 IEEE International Conference on Robotics and Biomimetics (ROBIO) (Under Review)*.
- Xingyao Han, Siyuan Chen, Xinye Xiong, Shunbo Zhou, Zhe Liu, “Traffic Flow Learning Enhanced Large-Scale Multi-Robot Cooperative Path Planning Under Uncertainties.” *2024 IEEE International Conference on Robotics and Automation (ICRA) (Under Review)*.
- X Xiong, B Zhou, YG Wang, “Graph Representation Learning for Interactive Biomolecule Systems.” *arXiv*.
- B Zhou, O Lv, K Yi, X Xiong, P Tan, L Hong, YG Wang, “Lightweight Equivariant Graph Representation Learning for Protein Engineering.” *Machine Learning for Structural Biology Workshop, NeurIPS 2022*.
- Y Shen, B Zhou, X Xiong, R Gao, YG Wang, “How Graph Neural Networks Enhance Convolutional Neural Networks Towards Mining the Topological Structures from Histology.” *ICML Workshop on Computational Biology 8*

## Awards & Honors

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<b>Academic Scholarship of Shanghai Jiao Tong University</b> <i>Shanghai Jiao Tong University</i>	2021 - 2023
<b>Outstanding Graduate of the Faculty of Science</b> <i>Southern University of Science and Technology</i>	2021
<b>Outstanding Graduate of the Mathematics Department</b> <i>Southern University of Science and Technology</i>	2021
<b>The first prize of SUSTech Outstanding Student Scholarship</b> <i>Southern University of Science and Technology</i>	2019 - 2021
<b>Sports Star of the Shuren College of SUSTech</b> <i>Southern University of Science and Technology</i>	2020
<b>Third Prize in Mathematical Contest in Modeling for Chinese University Students</b> <i>China Association for Industrial and Applied Mathematics</i>	2019

## Others

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- **Programming Languages:** Python, R, Matlab, C, C++, Java, Julia,
- **Athletics:** Member of the Women’s Soccer Team of SJTU, Captain of the Women’s Soccer Team of SUSTech Shuren College.
- **WFAXSJTU Club Organizer:** We are the first team in China to promote walking soccer, a sport similar to soccer but forbidden from running. We established the club to attract people with relative physical strength, such as senior citizens, to exercise more through soccer.
- See more information on <https://xinyexiong.github.io/>