

# Bowen Xu

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*Place of birth:* Yangzhou, Jiangsu, China \* *Date of birth:* 2002-08-16

## Personal Profile

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**Junior**, Major in **Computer Science (CS)**

**Advisor:** Ziyu Shao

**Research Interests:** Bandits & Reinforcement Learning, Deep Reinforcement Learning, Network Intelligence, Distributed AI Systems.

**Personal Website:** Bowen Xu's personal website.

## Education

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**ShanghaiTech University (Co-Founded by the Chinese Academy of Sciences)**

*Sep 2020 - Jun 2024 (Expected)*

- **Undergraduate:** School of Information Science and Technology
- **GPA:** 3.8 / 4.0 (12 / 177, top 6%)
- **Honors:** Merit Student (2020-2021), Outstanding Student (2021-2022)

## Curriculum

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- **Mathematics:** Convex Optimization (Graduate course, A+) / Matrix Computations (Graduate course, A+) / Numerical Optimization (A+) / Mathematical Analysis I (A) / Mathematical Analysis II (A) / Linear Algebra (A).
- **Major:** Reinforcement Learning (Graduate course, A+) / Deep Learning (Graduate course, A) / Online Optimization and Learning (Graduate course, A) / Computer Architecture I Project (A+) / Artificial Intelligence I (A).

## Research Experience

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**At Network Intelligence Center (NICE), ShanghaiTech University, Shanghai, China.**

*Jan, 2022 - Present*

**Dueling Bandit Algorithm Review**

*Jun 2022 - Oct 2022*

- Conducted a literature review of existing dueling bandit algorithms.

**Transformer Model Review**

*Dec 2022 - Feb 2023*

- Review on Transformer model and BERT model (including motivation, architecture, application, further development, etc.)

**Multi-Arm Bandit (MAB) with Supervised Feedback**

*Feb 2023 - Present*

*Position: Co-worker*

- Designed an innovative MAB model, which combines Bandit Feedback with Supervised Feedback.
- Simulated the effect of new model in the Federated distillation scene.

**Bandit Learning from Human Feedback**

*Mar 2023 - Present*

*Position: Co-worker*

- Investigated the RLHF (Reinforcement Learning from Human Feedback) model in ChatGPT.
- Used human feedback to train the bandit learning model, which is a lightweight RLHF.

### **Application of Deep Reinforcement Learning (DRL)**

*Apr 2023 - Present*

*Position: Co-worker*

- Reproduced the project of AlphaGo.
- Applied deep reinforcement learning in basic science (part of ShanghaiTech University 'AI for Science' Project).

### **Graph Neural Network (GNN) Bandit with Social Network**

*May 2023 - Present*

*Position: Co-worker*

- Constrained Graph Neural Network Bandit Algorithm with social network.
- Graph Neural Network Bandit Algorithm with dependent arms.

## **Teaching Assistantship**

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### **Mathematical Analysis II (Head TA)**

*Feb 2022 - Jun 2022*

### **Probability and Statistics for EECS**

*Feb 2023 - Present*

- Organized teaching assistant work & carried out online teaching.
- Weekly in-person tutorial and after-class questions (including exercise & discussion sessions)
- Designed and graded assignments (including weekly assignments, exam paper, etc.).

## **Honors and Awards**

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- **Merit Student (top 3%)** ShanghaiTech University, 2020-2021.
- **Outstanding Student (top 7-8%)** ShanghaiTech University, 2021-2022.
- **Mathematical Contest in Modeling (MCM):** Honorable Mention, 2022.
- **Mathematics Competition of Chinese College Student:** Second Prize, 2021.
- **Mathematics Competition of Chinese College Student:** Third Prize, 2022.

## **Activities**

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- **Director of ShanghaiTech University New Year's Eve** 2020.
- **Social Practice, Group Leader (Advanced Individual), Gansu, China** 2021.
- **Artificial Intelligence Industrial Practice, Shanghai** 2022.
- **Volunteer for Shanghai Marathon** 2020, 2022.

## **Technical skills**

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**Programming Languages/Tools**      C, C++, Python(Pytorch), Matlab, L<sup>A</sup>T<sub>E</sub>X, etc.