

# 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.

## 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:** 3.78 / 4.0 (12 / 177, top 6%)
- **Honors:** Merit Student (2020-2021), Outstanding Student (2021-2022)

## Curriculum

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- **Mathematics:** Mathematical Analysis I (A) / Mathematical Analysis II (A) / Linear Algebra (A) / Discrete Mathematics (A-) / Probability and Statistics I (A-) / Numerical Optimization (A+) / Convex Optimization (Graduate course, A+)
- **Major:** Introduction to Information Science and Technology (A-) / Introduction to Programming (A) / Algorithms and Data Structures (A-) / Computer Architecture I Project (A+) / Reinforcement Learning (Graduate course, A+) / Artificial Intelligence I (A) / Deep Learning (Graduate course, A)

## 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

## Research Experience

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

*Jan, 2022 - Present*

**Dueling Bandit Algorithm**

*Jun 2022 - Oct 2022*

- Conducted a literature review of existing dueling bandit algorithms.
- Made systematic review slides and a mind map for dueling bandit algorithms.

## Transformer Model Review

*Dec 2022 - Feb 2023*

- Detailed investigation on Transformer model and BERT model ( including motivation, architecture, application, further development, etc.)
- Made detailed review slides for Transformer model.

## 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 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 effect of AlphaTensor and AlphaGo.
- 'AI for Science' Project of ShanghaiTech University.

## Graph Neural Network (GNN) with Social Graph

*May 2023 - Present*

*Position: Co-worker*

- Constrained Graph Neural Network Bandits for Social Network.
- Graph Neural Network Bandits 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.).

## Activities

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- Director of ShanghaiTech University New Year's Eve 2020.
- Social Practice, Group Leader(Advanced Individual), Gansu, China 2021.
- Aviation Industry Industrial Activities, Group Leader, Yangzhou 2022.
- 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.

## Language proficiencies

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### English

CET-4 610, CET-6 509