

# Sihan Wang

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## Education

**University of Science and Technology of China**, Bachelor of Science in Mathematics 09/2021 - 07/2025  
Major: Computational Mathematics (Information & Computational Science)  
**Courses:** Operations Research 96, Numerical algebra 92, Data Structure and Database 92, Mathematical Modeling 90.

## Research

### Working Paper

**Privacy-Enhanced Methods for the Predict-then-Optimize Framework** 07/2024 - Present

**Supervisor:** Hanzhang Qin, National University of Singapore(NUS)

- We propose two novel gradient descent algorithms that incorporate the exponential mechanism and Gaussian mechanism within the “Smart Predict-then-Optimize” (SPO) framework, aiming to strike a balance between data privacy and optimization performance. We provide a rigorous performance analysis of the algorithms, demonstrating their ability to preserve privacy without significantly affecting convergence rates. Moreover, we establish that under specific conditions, these algorithms achieve provably near-optimal accuracy in terms of the expected SPO loss. Experimental results further support our theoretical insights, highlighting the algorithms’ robust performance in both private and non-private settings.
- First-author paper, which is available on [SSRN](#).

### Work in Progress

**Learning Supply Chain Using Neural Networks** 11/2024 - Present

**Supervisor:** Kan Xu, Arizona State University (ASU); Hanzhang Qin, National University of Singapore (NUS)

**Guided Recommendation System Based on Diffusion Model** 05/2023 - Present

**Supervisor:** Xiang Wang, University of Science and Technology of China (USTC)

## Awards

Outstanding Freshman Scholarship 2021

Outstanding Student Scholarship, Bronze 2022, 2023, 2024

## Extracurricular

**Head of the School Choir and WeChat Public Account Manager**

- Coordinate the work of the publicity team members
- Innovatively designed public account and received a record for the number of readings on the choir’s public account

## Skills

**Language Proficiency:** TOEFL 100 (Speaking 25), GRE 325+3.5

**Software:** Mathematica, Latex, Matlab

**Programming:** C++ , Python, Julia