

EDUCATION

- University of Illinois Urbana-Champaign** Illinois
 - Ph.D. Student in Information Science, School of Information Science* Aug. 2023 - Present
 - **Advisor:** Jiaqi Ma
 - **Research Area:** Theoretical Artificial Intelligence & Theoretical Computer Science
- University of Michigan** Michigan
 - B.Sc. in Computer Science, College of Engineering* Aug. 2021 - May 2023
 - Graduate with *Summa Cum Laude*
 - **Minor:** Mathematics, College of Literature, Science, and the Arts
- National Yang Ming Chiao Tung University** Hsinchu, Taiwan
 - Visiting Scholar* Jan. 2020 - Jul. 2020
- Shanghai Jiao Tong University** Shanghai, China
 - B.Eng. in Electrical and Computer Engineering, UM-SJTU Joint Institute* Aug. 2019 - Aug. 2023
 - **Minor:** Computer Science, UM-SJTU Joint Institute

RESEARCH EXPERIENCE

- Finding Minimal Balanced Separators with Detection Sets** Michigan
 - College of Engineering, University of Michigan* Mar. 2022 - Present
 - **Advisor:** Thatchaphol Saranurak
 - Design the first almost linear time algorithm on finding minimal balanced separator.
- Deep Learning Foundation** Michigan
 - SURE Program, College of Engineering, University of Michigan* May 2022 - Apr. 2023
 - **Advisor:** Wei Hu
 - Theoretical analysis on intrinsic dimension under isoperimetry assumptions.
- Theory of Graph Neural Networks** Michigan
 - School of Information, University of Michigan* Dec. 2021 - Jan. 2023
 - **Advisor:** Jiaqi Ma
 - Prove the asymptotic separability of a 1-layer GCN on node classification tasks.

PRE-PRINTS AND TECHNICAL REPORTS

(* denotes equal contribution)

[P1] **Pingbang Hu**, Thatchaphol Saranurak, “Finding Minimal Balanced Separators with Detection Sets”. *Manuscript*

[P2] **Pingbang Hu**, “Travel the Same Path: A Novel TSP Solving Strategy”. *Preprint*

TEACHING EXPERIENCE

- EECS475 Introduction to Cryptography** Michigan
 - Instructional Aide, College of Engineering, University of Michigan* Jan. 2023 - May 2023
 - An upper-level 100+ student course on the main CS track.
 - Hold discussion and office hour weekly, design assignment and exam problems, grade and guide projects.
 - **Topics:** *Historic ciphers, perfect secrecy, symmetric encryption, message authentication, cryptographic hash functions, and public key encryption.*
- EECS572 Randomness and Computation** Michigan
 - Instructional Aide, College of Engineering, University of Michigan* Aug. 2022 - Dec. 2022
 - A graduate-level 70+ student course on the M.S. theory CS track.
 - Hold discussion and office hour weekly, design assignment and exam problems, grade and guide projects.
 - **Topics:** *Randomized algorithms, randomized complexity, Markov chains, random walks, expander graphs, pseudo-random generators, and hardness v.s. randomness*

- **VV285 Honor Mathematics III** 🌐

Shanghai, China

Teaching Assistant, UM-SJTU Joint Institute, Shanghai Jiao Tong University

Mar. 2021 - Aug. 2021

 - An undergraduate-level 150+ student course on the main B.Eng. ECE track.
 - Hold discussion and office hour weekly, design and grade assignments and exams.
 - **Topics:** *Linear systems of equations, vector spaces, Gram-Schmidt orthonormalization, topology of normed spaces, vector fields, higher derivatives, integration on curves and surfaces; Stokes theorem, the inverse and implicit function theorems*
 - **Competition:** Hold the 1st UM-SJTU JIntegration Bee competition 🌐.
- **VV186 Honor Mathematics II** 🌐

Shanghai, China

Teaching Assistant, UM-SJTU Joint Institute, Shanghai Jiao Tong University

Sep. 2020 - Dec. 2020

 - An undergraduate-level 200+ student course on the main B.Eng. ECE track.
 - Hold discussion and office hour weekly, design and grade assignments and exams.
 - **Topics:** *Logic, set theory, sequences, convergence, completeness of metric spaces, convergence and continuity, derivative, normed vector spaces, sequences of functions, series and power series, Darboux and Riemann integrals*

HONORS AND AWARDS

- **Hong Kong, Macao and Taiwan Overseas Chinese Student Scholarship**

Shanghai, China

First Prize (Ranked #2) among all HK, MC and TW students in Shanghai Jiao Tong University

Oct. 2021
- **Undergraduate Excellent Scholarship**

Shanghai, China

Third Prize among all students in UM-SJTU Joint Institute

Nov. 2020
- **Bao Gang Excellent Scholarship**

Shanghai, China

Second Prize (Ranked #3) among all Taiwan students in Shanghai Jiao Tong University

Jun. 2020
- **Hong Kong, Macao and Taiwan Overseas Chinese Student Scholarship**

Shanghai, China

First Prize (Ranked #1) among all HK, MC and TW students in UM-SJTU Joint Institute

Dec. 2019