






## DEGREES

- 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
- 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 
  - 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 - Jan. 2023
  - **Advisor:** Wei Hu 
  - Theoretical analysis on intrinsic dimension under isoperimetry assumptions.
- Theory of Graph Neural Networks** Michigan
  - College of Engineering, University of Michigan* Dec. 2021 - Jan. 2023
  - **Advisor:** Jiaqi Ma 
  - Proving 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”. In *preparation*
- [P2] **Pingbang Hu**, “Travel the Same Path: A Novel TSP Solving Strategy”. In *arXiv 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 1<sup>st</sup> UM-SJTU JIntegration Bee competition 🏆.

- **VV186 Honor Mathematics II** 🏆  
*Teaching Assistant, UM-SJTU Joint Institute, Shanghai Jiao Tong University*  
 Shanghai, China  
 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*

## SELECTED HONORS AND AWARDS

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- **Hong Kong, Macao and Taiwan Overseas Chinese Student Scholarship**  
*First Prize (Ranked #2) among all HK, MC and TW students in Shanghai Jiao Tong University*  
 Shanghai, China  
 Oct. 2021
- **Undergraduate Excellent Scholarship**  
*Third Prize among all students in UM-SJTU Joint Institute*  
 Shanghai, China  
 Nov. 2020
- **Bao Gang Excellent Scholarship**  
*Second Prize (Ranked #3) among all Taiwan students in Shanghai Jiao Tong University*  
 Shanghai, China  
 Jun. 2020
- **Hong Kong, Macao and Taiwan Overseas Chinese Student Scholarship**  
*First Prize (Ranked #1) among all HK, MC and TW students in UM-SJTU Joint Institute*  
 Shanghai, China  
 Dec. 2019