Pingbang Hu

Email: pbb@umich.edu
Mobile: (+1) 734 882 7750

EDUCATION

University of Michigan – College of Engineering — Michigan, U.S.A.
Bachelor of Computer Science; Majored GPA – 4.0/4.0 — *Aug. 2021 - May. 2023*

University of Michigan – College of Literature, Science, and the Arts — Michigan, U.S.A.
Bachelor of Honor Math (Honor Program); GPA – 3.751/4.0 — *Aug. 2021 - May. 2023*

Shanghai Jiao Tong University – UM-SJTU Joint Institute — Shanghai, China
Bachelor of Electrical and Computer Engineering; GPA – 3.6/4.0 — *Aug. 2019 - May. 2023*

RESEARCH EXPERIENCE

Deep Learning Foundation — CoE, UMich, Michigan, U.S.A.
Undergraduate Researcher — *Mar. 2022 - Present*
- **General**: Fundamental Understanding of Deep Neural Network with Theoretical Analysis supported by SURE Program.
- **Intrinsic Dimension**: Characterizing the effect of dimensionality and the hardness of estimation which.

Graph Neural Network Theory — SI, UMich, Michigan, U.S.A.
Undergraduate Researcher — *Feb. 2022 - Present*
- **General**: Theoretical analysis on generalization ability of non-i.i.d. semi-supervised node-level tasks.
- **Success of GNN**: Toward understanding the success of GNN and pitfalls of using GCN (graph convolution network).

Fast Graph Algorithm — CoE, UMich, Michigan, U.S.A.
Undergraduate Researcher — *Mar. 2022 - Present*
- **General**: Understanding the compact cuts representation and their implication on network failure detection.
- **Balanced Separator**: An improved algorithm on finding small balanced separator in almost linear time.

Travel the Same Path: A Novel Approach — CoE, UMich, Michigan, U.S.A.
Undergraduate Researcher — *Jan. 2022 - Apr. 2022*
- **General**: Using imitation learning to speed up deterministic algorithm while maintaining the exactness of the solution.
- **Derandomization**: Demonstrate a potential next step of using AI to solve combinatorial optimization.

TEACHING EXPERIENCE

EECS475 Introduction to Cryptography — CoE, UMich, Michigan, U.S.A.
Instructional Aide — *Jan. 2023 - May. 2023*
- **General**: Collaborated with the teaching staff as an instructional aide of an 70+ student course on the theory CS track.
- **Discussion & Office Hour**: Hold discussion sections and weekly OH to reinforce conceptual understanding and review course material.

EECS572 Randomness and Computation — CoE, UMich, Michigan, U.S.A.
Instructional Aide — *Aug. 2022 - Dec. 2022*
- **General**: Collaborated with the teaching staff as an instructional aide of an 70+ student course on the theory CS track.
- **Discussion & Office Hour**: Hold discussion sections and weekly OH to reinforce conceptual understanding and review course material.

VV285 Honor Mathematics III — UM-SJTU JI, SJTU, Shanghai, China
Instructional Aide — *Mar. 2021 – Aug. 2021*
- **General**: Collaborated with the teaching staff as an instructional aide of a 150+ student course on the main ECE track.
- **Discussion & Office Hour**: Hold discussion sections and weekly office hours to reinforce conceptual understanding and review course material.
- **Competition**: Hold the 1st UM-SJTU JIntegration Bee competition

VV186 Honor Mathematics II — UM-SJTU JI, SJTU, Shanghai, China
Instructional Aide — *Sep. 2020 – Dec. 2020*
- **General**: Collaborated with the teaching staff as an instructional aide of a 200+ student course on the main ECE track.
- **Discussion & Office Hour**: Hold discussion sections and weekly office hour to reinforce conceptual understanding and review course material.

Honors and Awards

- **Hong Kong, Macao and Taiwan Overseas Chinese Student Scholarship**　　　SJTU, Shanghai, China
  First Price (Ranked 2) among all HK, MC and TW students in SJTU　　　　　　　*Oct. 2021*

- **Undergraduate Excellent Scholarship**　　　SJTU, Shanghai, China
  Third Price among all students in UM-SJTU JI　　　　　　　*Nov. 2020*

- **Bao Gang Excellent Scholarship**　　　SJTU, Shanghai, China
  Ranked 3 among all Taiwan students in SJTU　　　　　　　*Jun. 2020*

- **Hong Kong, Macao and Taiwan Overseas Chinese Student Scholarship**　　　SJTU, Shanghai, China
  Ranked 1 among all HK, MC and TW students in UM-SJTU JI　　　　　　　*Dec. 2019*