Zuobai Zhang

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Education

School of Computer Science, Fudan University, Shanghai **Sept. 2017 – Jul. 2021(expected)**
Bachelor of Computer Science (Honor Class)

- **GPA:** 3.92/4.0, **School Rank:** 1/145, **Major GPA:** 4.0/4.0

Publication

- **Nearly Linear Time Algorithm for Mean Hitting Times of Random Walks on a Graph.**
  Zuobai Zhang, Wanyue Xu, Zhongzhi Zhang
  Accepted by *ACM International Conference on Web Search and Data Mining (WSDM) 2020*
- **Fast Approximation of Coherence for Second-Order Noisy Consensus Networks.**
  Zuobai Zhang, Wanyue Xu, Yuhao Yi, Zhongzhi Zhang
  Submitted to *IEEE Transactions on Cybernetics (TCYB)*
- **Fast Estimation of the Diagonal of Pseudoinverse of Graph Laplacian.**
  Qi Bao, **Zuobai Zhang**, Wanyue Xu, Zhongzhi Zhang
  Submitted to *IEEE Transactions on Knowledge and Data Engineering (TKDE)*
- **Power-Law Graphs Have Minimal Scaling of Kemeny Constant for Random Walks.**
  Wanyue Xu, Yibin Sheng, **Zuobai Zhang**, Haibin Kan, Zhongzhi Zhang
  Submitted to *The Web Conference (WWW) 2020*

Research Experience

Fast Algorithms on Graph Mining **Fudan University**
Advisor: Prof. Zhongzhi Zhang *Apr. 2018 - Feb. 2019*

- Presented a series of approximation algorithms with nearly linear time for some graph mining quantities based on Laplacian Solvers and provided approximation guarantees for these algorithms.
- Conducted experiments on several model networks and a large set of realistic networks from different domains.
- Contributed to a first-author paper accpeted by **WSDM 2020**, and two papers submitted to **TCYB** and **TKDE**, respectively.
- Supported by Fudan's Undergraduate Research Program Opportunities Program (FDUROP) under Grant No.19914.

Edge Centrality Based on Optimizing the Robustness of a Graph **Fudan University**
Advisor: Prof. Zhongzhi Zhang *Mar. 2019 - present*

- Proposed a novel edge centrality measure based on the eigen-drop of spectral radius of the non-backtracking matrix of a graph.
- Transformed the optimization problem into a submodular optimization problem and put forward a fast algorithm.
- Experimental results demonstrate that our algorithm outperforms other strategies and is able to scale to large networks.

Optimization on Kirchhoff Index via Edge Addition **Fudan University**
Advisor: Prof. Zhongzhi Zhang *Jul. 2019 - present*

- Proved the NP-Hardness of the optimization of Kirchhoff index by adding edges.
- Proposed a sub-quadratic approximation algorithm for the special case of single edge addition which significantly reduces the cubic time complexity of the exact algorithm.

Honor & Award

Chinese National Scholarship (Top 1%) **Oct. 2019**
Chun Tsung Scholar Program **Apr. 2019**
Wish Scholarship **May 2019**
Chinese National Scholarship (Top 1%) **Oct. 2018**
Gold Medal, ACM-ICPC Asia Regional Contest EC-Final **Dec. 2017**
Gold Medal, ACM-ICPC Asia Regional Contest Qingdao Site **Nov. 2017**

Skill

- **Programming Languages:** C/C++ > Python = LaTeX> Julia = MATLAB > JavaScript » HTML
- **Language:** Chinese-Native, English-Fluent (**GRE**: 162+169+4.0)