Shuaiqi Wang

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Education

Shanghai Jiao Tong University   **Shanghai, China**
Sep. 2016 - Jun. 2020 (Expected)
- Senior undergraduate, Dept. of Computer Science.
- Zhiyuan Honors Program of Engineering (an elite program for top 5% talented students)
- GPA: Major: 92.1/100 | Final Year: 93.2/100

Research Interests

Netowrk science, performance analysis, algorithms, optimization, distributed systems

Publications and Manuscripts

- L. Fu, **S. Wang**, H. Long, X. Fu, X. Wang and S. Lu, "On Social Network De-anonymization with Communities: A Maximum A Posteriori Perspective", in *IEEE/ACM Transactions on Networking*. (Minor Review)

- L. Fu, J. Zhang, **S. Wang**, Y. Zhang, Z. Hu and X. Wang, "De-anonymizing Social Networks with Overlapping Community Structure", in *IEEE/ACM Transactions on Networking*. (Minor Review)

- **S. Wang**, L. Fu, S. Li, X. Wang and X. Lin, "Efficient Distributed Steiner Tree Construction in Wireless Sensor Networks with Unreliable Links". (Prepare for *SIGMETRICS 2020*)

- B. Miao, **S. Wang**, L. Fu, X. Wang and X. Lin, "De-anonymizability of Social Network: Through the Lens of Symmetry". (Submitted to *MobiHoc 2020*)

- X. Wu, **S. Wang**, Z. Hu, L. Fu and X. Wang, "De-anonymization of Social Networks: The Power of Symmetry".

- X. Wu, L. Fu, **S. Wang**, B. Jiang, X. Wang and G. Chen, "Collective Influence Boosts Influence Maximization".

Research Experiences

Distributed Steiner Tree Construction in WSNs with Unreliable Links
Guide: Prof. Luoyi Fu, Prof. Xinbing Wang, SJTU   Prof, Xiaojun Lin, Purdue   Sep. 2018 - Nov. 2019
- The first work constructing approximate minimum-length multicast trees under unreliable links
- Analyzed the effect of unrealiable links on data communication and proposed a protocol to search and communicate with others successfully and energy-efficiently
- Designed a distributed algorithm, whose time and message complexity are the lowest among state-of-art algorithms even under reliable links, to construct the energy-efficient multicast tree under unreliable links
- Quantitatively analyzed the performance of the algorithm and the constructed tree under general node distribution, and empirical results showed that the ratio between the tree length and that of Steiner tree is 1.061

Social Network De-anonymization with Communities
Guide: Prof. Luoyi Fu, Prof. Xinbing Wang, SJTU   *Mar. 2019 - Oct. 2019*
- Derived the cost functions as metrics to quantify the structural mismappings between networks based on Maximum A Posteriori estimation in different settings distinguished by the availability of community information
- Figured out the conditions under which minimizing the cost function can perfectly recover the correct mapping
- Designed algorithms to approximately minimize the cost functions after converting them to quadratic assignment or matrix formulations

Seedless De-anonymization with Overlapping Community Structure

Guide: Prof. Luoyi Fu, Prof. Xinbing Wang, SJTU   *Sep. 2018 - Sep. 2019*

o Quantified the expected number of mismatched users in networks with overlapping communities by virtue of Minimum Mean Square Error (MMSE)

o Simplified MMSE problem by transforming it into a weighted-edge matching problem and proved the approximation ratio

o Proposed an approximate algorithm by virtue of convex-concave optimization method

De-anonymizability of Social Network: Through the Lens of Symmetry

Guide: Prof. Luoyi Fu, Prof. Xinbing Wang, SJTU   *Mar. 2019 - Aug. 2019*

o Captured the symmetry of networks by automorphism and homomorphism

o Built the relationship between symmetry and de-anonymizability, and quantitatively determined the de-anonymizability of given networks

o Designed an approximate algorithm to estimate de-anonymizability via sampling techniques

De-anonymization via Symmetry Property

Guide: Prof. Luoyi Fu, Prof. Xinbing Wang, SJTU   *Jul. 2018 - Nov. 2018*

o Classified the symmetry property of networks as intra-symmetry and inter-symmetry, and analyze the de-anonymizability of classical network models based on these properties

o Designed an algorithm to de-anonymize graphs with high accuracy in an online manner based on the attribute of each node

Selected Project

PPT Ctrl: an interactive PPT control APP

National Competition Project   *Sep. 2018 - Aug. 2019*

o Designed a smart phone APP to enable real-time computer screen display on phone and control slides in an interactive way with the functions of page switching, highlighting, magnifying and drawing

o Implemented the system based on Qt and Android platform in a team of four students as a main developer

o Won the first price in China Undergraduate Computer Design Competition, 2019 and the first price in Shanghai Undergraduate Computer Application Ability Competition, 2019

Honors and Awards

o **Zhiyuan College Honors Scholarship** Awarded to top 5% students   2017, 2018 & 2019

o **Academic Excellence Scholarship** Awarded to top 10% students   2017, 2018 & 2019

o **First Prize in China Undergraduate Computer Design Competition**   2019
  Awarded to top 5% participants