

Guimu Guo

Assistant Professor
Department of Computer Science
College of Science & Mathematics
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Research Interests

Guimu Guo joined Department of Computer Science of Rowan University as an Assistant Professor in September 2022. His research interests broadly lie in Data Mining, Parallel and Distributed Computing, GPGPU Programming and Machine Learning, especially in Parallel and Distributed Graph Mining System.

Education

University of Alabama at Birmingham, Birmingham, AL Sep. 2017 – May. 2022

Ph.D. candidate in Computer Science

Dissertation: Scalable Subgraph Mining in a Big Graph

Tongji University, Shanghai, China Sep. 2014 – July. 2017

M.Eng. in Software Engineering

Dissertation: Modeling in Specific Field and Application in Data Analysis System

Shandong Jianzhu University, Shandong, China Sep. 2009 – July. 2013

Major: B.Eng in Civil Engineering

Minor: B.Management in Accounting

Industry Experience

Assistant Professor, Rowan University

Sep. 2022 - Present

R&D Software Engineer Intern, IBM China System Center

May. 2015 - Dec. 2015

Grant & Awards

NSF CRII Award #2245792

2023

Outstanding PhD Student Award, College of Arts and Sciences, UAB

2022

Alabama Graduate Research Scholar Program (GRSP) Award, Round 15, 16

2020, 2021

Second Prize in National Postgraduate Mathematic Contest in Modeling

2015

First Class Scholarship, Shandong Jianzhu University

2010

Professional Activities

Program Committee Member

- International Joint Conference on Artificial Intelligence (IJCAI) 2021, 2023
- Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD) 2023
- Conference on Information and Knowledge Management (CIKM) 2022
- BTSD@IEEE BigData 2022
- IJCAI-ECAI 2022

Journal Reviewer

- Distributed and Parallel Databases (DPD) 2023
- Transactions on Knowledge and Data Engineering (TKDE) 2022
- Transactions on Parallel and Distributed Systems (TPDS) 2021, 2022
- Journal of Parallel and Distributed Computing (JPDC) 2021
- IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB) 2018

Conference Co-Reviewer

SIGKDD 2021; SIGMOD 2020, 2021; VLDB 2018; ICDE 2021; CIKM 2021; BigData 2021; BTSD@BigData 2020, 2022; IRI 2018, 2020, 2021; VLDB 2021 Demonstration Track; DMBIH@ICDM2020; PAKDD 2020; ICPP 2018; IEEE BigData Congress 2018

Webmaster

International Workshop on Data Mining in Bioinformatics (BIOKDD) 2018

Publications

Journal Publications

- [J1] Zongliang Yue, Da Yan, **Guimu Guo**, Jake Y. Chen, "Biological Network Mining," Biostatistics Research 2023.
- [J2] Yan, Da, **Guimu Guo**, Jalal Khalil, M. Tamer Özsu, Wei-Shinn Ku, and John Lui. "G-thinker: a general distributed framework for finding qualified subgraphs in a big graph with load balancing." *The VLDB Journal* 2022.
- [J3] Jalal Khalil, Da Yan, **Guimu Guo**, Lyuheng Yuan, "Parallel Mining of Large Maximal Quasi-Cliques," *The VLDB Journal* 2022.
- [J4] Yan, Da, Wenwen Qu, **Guimu Guo**, Xiaoling Wang, and Yang Zhou. "PrefixFPM: a parallel framework for general-purpose mining of frequent and closed patterns," *The VLDB Journal* 2022.
- [J5] **Guimu Guo**, Hongzhi Chen, Da Yan, James Cheng, Jake Y. Chen, and Zechen Chong, "Scalable De Novo Genome Assembly Using a Pregel-Like Graph-Parallel System," *IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)*, 2019.

Conference Publications

- [c1] Akhlaque Ahmad, Lyuheng Yuan, Da Yan, **Guimu Guo**, Jieyang Chen, Chengcui Zhang, "Accelerating k-Core Decomposition by a GPU," International Conference on Data Engineering (ICDE), 2023
- [c2] **Guimu Guo**, Da Yan, Lyuheng Yuan, Jalal Khalil, Cheng Long, Zhe Jiang, Yang Zhou,

- "Maximal Directed Quasi-Clique Mining," *International Conference on Data Engineering (ICDE)*, 2022
- [c3] Da Yan, Md Mashiur Rahman Chowdhury, **Guimu Guo**, Jalal Kahlil, Zhe Jiang, Sushil Prasad, "Distributed Task-Based Training of Tree Models," *International Conference on Data Engineering (ICDE)*, 2022.
- [c4] Jalal Khalil, Da Yan, **Guimu Guo**, Mirza Tanzim Sami, Joy Bhadhan Roy, Virginia Sisiopiku, "Realistic Transport Simulation for Studying the Impacts of Shared Micromobility Services," *IEEE International Conference on Big Data (IEEE BigData)*, 2021.
- [c5] Mirza Tanzim Sami, Da YAN, Huang Huang, Xinyu Liang, **Guimu Guo**, and Zhe Jiang, "Drone-Based Tower Survey by Multi-Task Learning," *IEEE International Conference on Big Data (IEEE BigData)*, 2021.
- [c6] Jalal Khalil, Da Yan, **Guimu Guo**, Mirza Tanzim Sami, Joy Bhadhan Roy, Virginia Sisiopiku, "Traffic Study of Shared Micromobility Services by Transportation Simulation," *International Workshop on Big Data Tools, Methods, and Use Cases for Innovative Scientific Discovery (BTSD@IEEE BigData)* 2021.
- [c7] **Guimu Guo**, Da Yan, M. Tamer Özsu, Zhe Jiang, Jalal Majed Khalil, "Scalable Mining of Maximal Quasi-Cliques: An Algorithm-System Codesign Approach," *Proceedings of the VLDB Endowment (PVLDB)*, 2020.
- [c8] Da Yan, **Guimu Guo**, Md Mashiur Rahman Chowdhury, Tamer Özsu, Wei-Shinn Ku, and John C.S. Lui, "G-thinker: A Distributed Framework for Mining Subgraphs in a Big Graph," *IEEE International Conference on Data Engineering (ICDE)*, 2020.
- [c9] Da Yan, Wenwen Qu, **Guimu Guo**, and Xiaoling Wang, "PrefixFPM: A Parallel Framework for General-Purpose Frequent Pattern Mining," *IEEE International Conference on Data Engineering (ICDE)*, 2020.
- [c10] Wenwen Qu, Da Yan, **Guimu Guo**, Xiaoling Wang, Lei Zou, Yang Zhou, "Parallel Mining of Frequent Subtree Patterns," *International Workshop on Large Scale Graph Data Analytics (LSGDA@VLDB)*, 2020.
- [c11] Ramin Goudarzi Karim, **Guimu Guo**, Da Yan, Carmeliza Navasca. "Accurate Tensor Decomposition with Simultaneous Rank Approximation for Surveillance Videos". *The 54th Asilomar Conference on Signals, Systems and Computers (ACSSC)* 2020).
- [c12] Da Yan, **Guimu Guo**, Md Mashiur Rahman Chowdhury, M. Tamer Özsu, John C. S. Lui, Weida Tan, "T-thinker: A Task-Centric Distributed Framework for Compute-Intensive Divide-and-Conquer Algorithms," *Symposium on Principles and Practice of Parallel Programming (PPoPP)*, 2019.
- [c13] **Guimu Guo**, Jalal Majed Khalil, Da Yan, and Virginia Sisiopiku, "Realistic Transport Simulation: Tackling the Small Data Challenge with Open Data," *IEEE International Conference on Big Data (IEEE BigData)*, 2019.
- [c14] Ji Cheng, **Guimu Guo**, Da Yan, Xiaotian Hao, and Wilfred Ng, "EasyRain: A User-Friendly Platform for Comparing Precipitation Nowcasting Models," *IEEE International Conference on Big Data (IEEE BigData)*, 2019.
- [c15] **Guimu Guo**, Jalal Majed Khalil, Da Yan, and Virginia Sisiopiku, "Realistic Transport Simulation with Open Data," *IEEE International Conference on Big Data (IEEE BigData)*, 2019.
- [c16] Yi Yang, Da Yan, Shuigeng Zhou, and **Guimu Guo**, "Parallel Clique-like Subgraph Counting

and Listing", *International Conference on Conceptual Modeling (ER)*, 2019.

[c17] Ping Sun, **Guimu Guo**, and Rongjie Yu, "Traffic Crash Prediction Based on Incremental Learning Algorithm," *IEEE International Conference on Big Data Analysis (ICBDA)*, 2017.

Tutorial

[T1] Da Yan and **Guimu Guo**, "Systems and Algorithms for Massively Parallel Graph Mining," *IEEE International Conference on Big Data (IEEE BigData)*, 2020.

Book Chapters

[B1] Zongliang Yue, Da Yan, **Guimu Guo**, Jake Yue Chen, "Biological Network Mining". *Modelling transcriptional Regulation, Methods in Molecular Biology*, Springer, 2021.

[B2] Da Yan, Yang Zhou, **Guimu Guo**, "Think Like a Task Programming Model," *Encyclopedia of Big Data Technologies*.

[B3] Da Yan, Yang Zhou, **Guimu Guo**, Hang Liu, "Parallel Graph Processing," *Encyclopedia of Big Data Technologies*.

Teaching and Advising

Teaching Experience

Rowan University

- CS 04113: Introduction of Object Oriented Programming Fall 2022, Spring 2023

University of Alabama at Birmingham

- CS 403/633/733: Cloud Computing (TA, design and teach lab class) Summer 2020
- CS 665/765: Deep Learning (TA) Spring 2020
- CS 485/685/785: Data Science Foundations (guest lecture) Spring 2019

Tongji University

- Database Principle and Application (TA and guest lecture) Spring 2015

Mentoring Experience

I mentor several junior graduate students on research projects. I was responsible to organizing periodically meetings and seminars with them, identifying potential research problems, deriving concrete solutions, conducting experiments. The co-authored papers appear in the top conferences.

- Lyuheng Yuan [PhD, 2021-now], UAB Blazer Fellowship Awardee
- Saugat Adhikari [PhD, 2021-now], UAB Blazer Fellowship Awardee
- Brian Campana [Master, 2022-now], Rowan University
- Michael Greenbaum [Undergraduate, 2022-now], Rowan University Martinson Scholar
- Michael Loughlin [Undergraduate, 2022-now], Rowan University
- Collin Meeker [Undergraduate, 2023-now], Rowan University
- Spencer Lee [Undergraduate, 2023-now], Rowan University
- Nicolas Lunt [Undergraduate, 2023-now], Rowan University
- Hunter Gareau [Undergraduate, 2023-now], Rowan University