

# MIAO QIAO

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## EDUCATION AND EMPLOYMENT

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<b>Senior Lecturer (above the bar)</b> School of Computer Science University of Auckland, New Zealand	<i>2023 - present</i>
<b>Senior Lecturer</b> equivalent to Associate Professor in Tenure Track systems School of Computer Science University of Auckland, New Zealand	<i>2021 - 2022</i>
<b>Lecturer</b> School of Computer Science University of Auckland, New Zealand	<i>2018 - 2020</i>
<b>Lecturer</b> School of Engineering and Advanced Technology Massey University, New Zealand	<i>2016 - 2018</i>
<b>Researcher</b> Advanced Digital Sciences Center Singapore	<i>2015-2016</i>
<b>Postdoctoral Fellow</b> Department of Computer Science and Engineering The Chinese University of Hong Kong, Hong Kong	<i>2013 - 2015</i>
<b>Doctor of Philosophy</b> Systems Engineering and Engineering Management The Chinese University of Hong Kong, Hong Kong	<i>2009 - 2013</i>
<b>Bachelor of Engineering</b> Computer Science and Engineering Shanghai Jiao Tong University, China	<i>2005 - 2009</i>

## FUNDING

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- Principal Investigator of the project “Advanced Graph Analytics for Human Brain Connectivity”, supported by New Zealand Singapore Data Science Programme, the Ministry of Business Innovation and Employment (MBIE) New Zealand, **NZD 3,000,000**. *2020 - 2024*
- Principal Investigator of project “Subgraph Matching: Theory and Practice”, supported by Marsden Fast-Start, Royal Society of New Zealand, **NZD 300,000**. *2018 - 2024*

## LEADERSHIP AND SERVICES

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### Program Committee Chair:

- Australasian Database Conference (ADC) *2021*
- Doctoral Consortium of International Semantic Web Conference (ISWC), Core rank A *2019*

### Review Board Member:

- Proceedings of the ACM Symposium on Principles of Database Systems (PODS), Core rank A\* *2023*
- Proceedings of the Very Large Database Endowment (PVLDB), Core rank A\* *2020-2021*

### Program Committee Member:

- International Joint Conferences on Artificial Intelligence (IJCAI), Core rank A\* 2019-2021
- Association for the Advancement of Artificial Intelligence (AAAI), Core rank A\* 2020

### Reviewer:

- Symposium on Computational Geometry, Core rank A, 2019
- Transactions on Database Systems (TODS), Core rank A\* 2015, 2018, 2019
- Transactions on Knowledge and Data Engineering (TKDE), Core rank A\* 2018
- International Conference on Knowledge Discovery & Data Mining (KDD), Core rank A\* 2016
- International Conference on Data Mining (ICDM), Core rank A\* 2013, 2014
- Web Information Systems Engineering (WISE), Core rank A 2013
- International Journal on Very Large Data Bases (VLDBJ), Core rank A\* 2013, 2018, 2019, 2024
- ACM Transactions on Database Systems (TODS), Core rank A\* 2024

**Vice President** of South Pacific Competition Programming Association in 2023.

### University Services:

- **School-level** PhD coordinator (deputy) 2019-2020
- **School-level** ACM International Collegiate Programming Contest coordinator 2018-2023
- **University-level** Member of the University of Auckland Human Participants Ethics Committee (UAHPEC) 2021-2023

### TALKS

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- 2024, Scalable Query Processing with Graphs. Data Systems Seminar Series, University of Waterloo
- 2024, Scalable Query Processing with Graphs. Database group, CMU

### AWARDS

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- VLDB 2013 Travel Fellowship 2013
- Doctor Scholarship, The Chinese University of Hong Kong 2009-2013
- Shanghai Jiao Tong University 1st Class Scholarship 2008
- ACM International Collegiate Programming Contest (ICPC), 3rd Place, Singapore 2007
- Computer World Scholarship 2007
- Singapore Technology Engineering Scholarship 2006
- ACM International Collegiate Programming Contest (ICPC), 1st Place, Korea 2005
- Silver medal nationwide, National Olympiad in Informatics, China 2004

### TEACHING

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- COMPSCI751, Advanced Topics in Database Systems (2019-2023)
- SOFTENG351, Fundamentals of Database Systems (2019-2023)

- COMPSCI351, Fundamentals of Database Systems (2019-2023)
- COMPSCI753, Algorithms for Massive Data (2018-2019)
- 158.347, Database Paradigms (2017)
- 159.172, Computational Thinking and Algorithms (2017)
- 158.247, Database Design (2017-2018)
- 158.225, Systems Analysis and Modelling (2017-2018)
- 158.258, Web Development (2016)
- 158.172, Computational Thinking and Algorithms (2016)
- 158.225, Systems Analysis and Modelling (2016)

#### Graduated Students:

- Wentao Li. PhD 2021. Lecturer at the University of Leicester since 2024. Wentao was selected as 2021 Global Top 100 Chinese Rising Stars in Artificial Intelligence.
- Zijin Feng. PhD 2024. Huawei, Hong Kong.

#### Ongoing Students:

- Yizhou Dai
- Callum Cory

## CONFERENCE PUBLICATIONS

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- Zhencan Peng, **Miao Qiao**, Wenchao Zhou, Feifei Li, Dong Deng, Dynamic Range-Filtering Approximate Nearest Neighbor Search. *Under revision, VLDB*, 2025.
- \*Zijin Feng, **Miao Qiao**, Chengzhi Piao, Hong Cheng. On Graph Representation for Attributed Hypergraph Clustering. *To appear in SIGMOD*, 2025.
- Jiaxing Xu, Kai He, Mengcheng Lan, Qingtian Bian, Wei Li, Tieying Li, Yiping Ke, **Miao Qiao**. Contrastformer: A Brain Network Contrastive Transformer for Neurodegenerative Condition Identification. *Proceedings of the 33rd ACM International Conference on Information and Knowledge Management* 2024.
- Chaoji Zuo, **Miao Qiao**, Wenchao Zhou, Feifei Li, Dong Deng. SeRF: Segment Graph for Range-Filtering Approximate Nearest Neighbor Search. *Proceedings of the International Conference on Management of Data (SIGMOD)* 2(1): 69:1-69:26 (2024)
- \*Yizhou Dai, **Miao Qiao**, Rong-Hua Li. On Density-based Local Community Search. *Proceedings of the 34th ACM Symposium on Principles of Database Systems (PODS)* 2(2): 88, 2024
- \*Zijin Feng, **Miao Qiao**, Hong Cheng. Modularity-based Hypergraph Clustering: Random Hypergraph Model, Hyperedge-cluster Relation, and Computation. *Proceedings of the International Conference on Management of Data (SIGMOD)*, 1(3): 215:1-215:25, 2024.
- Jiaxing Xu, Yunhan Yang, David Tse Jung Huang, Sophi Shilpa Gururajapathy, Yiping Ke, **Miao Qiao**, Alan Wang, Haribalan Kumar, Josh McGeown, Eryn Kwon. Data-Driven Network Neuroscience: On Data Collection and Benchmark. *Conference on Neural Information Processing Systems (NeurIPS)*, 2023.
- Yiping Liu, Jiamou Liu, Bakh Khoussainov, **Miao Qiao**, Bo Yan, Mengxiao Zhang, Centralization Problem for Opinion Convergence in Decentralized Networks. *Proceedings of the International Conference on Advances in Social Networks Analysis and Mining*, Pages 658-665, 2023.

- \*Yizhou Dai, **Miao Qiao**, Lijun Chang. Anchored Densest Subgraph. *Proceedings of the International Conference on Management of Data (SIGMOD)*, pages 1200-1213, 2022.
- \*Wentao Li, **Miao Qiao**, Lu Qin, Ying Zhang, Lijun Chang, Xuemin Lin. On Scalable Computation of Graph Eccentricities. *Proceedings of the International Conference on Management of Data (SIGMOD)*, pages 904-916, 2022.
- \*Zijin Feng, **Miao Qiao**, Hong Cheng. Clustering Activation Networks. *Proceedings of the 34th International Conference on Data Engineering (ICDE)*, pages 780-792, 2022.
- **Miao Qiao**, Yufei Tao. Two-Attribute Skew Free, Isolated CP Theorem, and Massively Parallel Joins. *Proceedings of the 40th ACM Symposium on Principles of Database Systems (PODS)*, pages 166-180, 2021.
- \*Wentao Li, **Miao Qiao**, Lu Qin, Ying Zhang, Lijun Chang, Xuemin Lin. Scale Distance Labeling on Graphs with Core-Periphery Properties. *Proceedings of the International Conference on Management of Data (SIGMOD)*, pages 1367-1381, 2020.
- Lijun Chang, **Miao Qiao**. Deconstruct Densest Subgraphs. *Proceedings of the World Wide Web Conference (WWW)*, pages 2747-2753, 2020.
- \*Wentao Li, **Miao Qiao**, Lu Qin, Ying Zhang, Lijun Chang, Xuemin Lin. Scaling Distance Labeling on Small-World Networks. *Proceedings of the International Conference on Management of Data (SIGMOD)*, pages 1060-1077, 2019.
- \*Wentao Li, **Miao Qiao**, Lu Qin, Ying Zhang, Lijun Chang, Xuemin Lin. Exacting Eccentricity for Small-World Networks. *Proceedings of the 34th International Conference on Data Engineering (ICDE)*, pages 785-796, 2018.
- **Miao Qiao**, Hao Zhang, Hong Cheng. Subgraph Matching: on Compression and Computation. *Proceedings of the Very Large Database Endowment (PVLDB)*, 11(2): 176-188, 2017.
- **Miao Qiao**, Junhao Gan, Yufei Tao. Range Thresholding on Streams. *Proceedings of the International Conference on Management of Data (SIGMOD)*, pages 571-582, 2016.
- \*\* Xiaocheng Hu, **Miao Qiao**, Yufei Tao. Join Dependency Testing, Loomis-Whitney Join, and Triangle Enumeration. *Proceedings of the 34th ACM Symposium on Principles of Database Systems (PODS)*, pages 291-301, 2015.
- \*\* Xiaocheng Hu, **Miao Qiao**, Yufei Tao. External Memory Stream Sampling. *Proceedings of the 34th ACM Symposium on Principles of Database Systems (PODS)*, pages 229-239, 2015.
- \*\* Xiaocheng Hu, **Miao Qiao**, Yufei Tao. Independent Range Sampling. *Proceedings of the 33rd ACM Symposium on Principles of Database Systems (PODS)*, pages 246-255, 2014.
- **Miao Qiao**, Lu Qin, Hong Cheng, Jeffrey Xu Yu. Top-K Nearest Keyword Search on Large Graphs. *Proceedings of the Very Large Database Endowment (PVLDB)*, 6(10): 901-912, 2013.
- **Miao Qiao**, Hong Cheng, Lijun Chang, Jeffrey Xu Yu. Approximate shortest distance computing: a query-dependent local landmark scheme. *Proceedings of the 28th International Conference on Data Engineering (ICDE)*, pages 462-473, 2012.
- **Miao Qiao**, Hong Cheng, Jeffrey Xu Yu. Querying Shortest Path Distance with Bounded Errors in Large Graphs. *Proceedings of the 23rd International Conference on Scientific and Statistical Database Management (SSDBM)*, pages 255-273, 2011.

## JOURNAL PUBLICATIONS

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- Jiaxing Xu, Qingtian Bian, Xinhang Li, Aihu Zhang, Yiping Ke, **Miao Qiao**, Wei Zhang, Wei Khang Jeremy Sim, Balazs Gulyas. Contrastive Graph Pooling for Explainable Classification of

Brain Networks. *IEEE Transactions on Medical Imaging (TMI)*, 2024, **PREMIA Best Student Paper Honourable Mention Award**. **Impact factor** 11.037.

- \*Wen, Grace, Vickie Shim, Samantha Jane Holdsworth, Justin Fernandez, **Miao Qiao**, Nikola Kasabov, and Alan Wang. Machine Learning for Brain MRI Data Harmonisation: A Systematic Review, 2023. *Bioengineering*, 10(4):397, 2023. **Impact factor** 5.046.
- \*Wentao Li, **Miao Qiao**, Lu Qin, Ying Zhang, Lijun Chang, Xuemin Lin. Distance labeling: on parallelism, compression, and ordering. *Very Large Data Base Journal (VLDBJ)*, 31(1): 129-155, 2022. **Impact factor** 4.243.
- \*Wentao Li, **Miao Qiao**, Lu Qin, Ying Zhang, Lijun Chang, Xuemin Lin. Eccentricities on small-world networks. *Very Large Data Base Journal (VLDBJ)*, 28(8): 1-28, 2019. **Impact factor** 4.243.
- Yufei Tao, Xiaocheng Hu, **Miao Qiao**. Stream Sampling over Windows with Worst-Case Optimality and  $l$ -Overlap Independence. *Very Large Data Base Journal (VLDBJ)*, 26(4): 493-510, 2017. **Impact factor** 4.243.
- \*\* Xiaocheng Hu, **Miao Qiao**, Yufei Tao. I/O-efficient join dependency testing, Loomis-Whitney join, and triangle enumeration. *Journal of Computer and System Sciences* 82(8): 1300-1315 (2016)
- \*\* Xiaocheng Hu, **Miao Qiao**, Yufei Tao. Independent Range Sampling on a RAM. *IEEE Data Engineering Bulletin* 38(3): 76-83 (2015)
- **Miao Qiao**, Hong Cheng, Lijun Chang and Jeffrey Xu Yu. Approximate Shortest Distance Computing: A Query-Dependent Local Landmark Scheme. *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 26(1): 55-68, 2014. **Impact factor** 7.05.
- **Miao Qiao**, Hong Cheng, Lu Qin, Jeffrey Xu Yu, Philip S. Yu and Lijun Chang. Computing Weight Constraint Reachability in Large Networks. *International Journal on Very Large Data Bases (VLDBJ)*, 22(3): 275-294, 2012. **Impact factor** 4.243.
- Lijun Chang, Jeffrey Xu Yu, Lu Qin, Hong Cheng, **Miao Qiao**. The Exact Distance to Destination in Undirected World. *International Journal on Very Large Data Bases (VLDBJ)*, 21(6): 869-888, 2012. **Impact factor** 4.243.

## REFERENCES

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Dr. Yufei Tao	Professor	Postdoc supervisor
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