

Yixin Cao

Associate Professor
of Computer Science



Department of Computing
Hong Kong Polytechnic University
PQ706, Mong Man Wai Building

Tel: +852 3400 3195
Email: yixin.cao@polyu.edu.hk
<https://polyu.hk/aLmdx>

EDUCATION

Ph.D., Computer Science May 2012
Texas A&M University, College Station, Texas

M.S., Computer Science, March 2003
Beihang University, Beijing, China

B.E., Automation, July 2000
Harbin Engineering University, Harbin, China

PROFESSIONAL EXPERIENCE

Associate Professor 07/2021–present
Department of Computing, Hong Kong Polytechnic University

Assistant Professor 11/2017–06/2021
Department of Computing, Hong Kong Polytechnic University

Research Assistant Professor 06/2014–10/2017
Department of Computing, Hong Kong Polytechnic University

Postdoctoral Research Fellow 06/2012–05/2014
Institute for Computer Science and Control, Hungarian Academy of Sciences

RESEARCH INTERESTS

Theoretical Computer Science, particularly

- algorithmic graph theory & graph classes,
- fine-grained complexity and algorithm design,
- combinatorial optimization, and
- their applications in social networks and bioinformatics.

GRANTS (PI ONLY)

1. Forbidden structures of circular-arc graphs and their algorithmic applications, *Hong Kong Polytechnic University (PolyU)*, 4-ZZEZ, HK\$328,000, 09/2015–08/2017.
2. Theoretical analysis of heuristics in big data, *National Laboratory of Software Development Environment (NLSDE)*, *Beihang University*, SKLSDE-2016KF-02, CN¥100,000, 07/2016–07/2018.
3. Efficient algorithms for graph modification problems, *Hong Kong Research Grants Council (RGC)*, 25202615, HK\$726,075 + HK\$345,215, 01/2016–12/2018.
4. Combinatorial and algorithmic studies on cycles, *National Natural Science Foundation of China (NSFC)*, 61572414, CN¥787,000 + HK\$333,231, 01/2016–12/2019.
5. Graph algorithms based on modular decomposition, *Hong Kong Research Grants Council (RGC)*, 15226116, HK\$675,647 + HK\$345,129, 01/2017–12/2019.
6. Super-polynomial approximation of graph problems, *Hong Kong Research Grants Council (RGC)*, 15201317, HK\$700,000 + HK\$120,000, 01/2018–12/2020.

7. Algorithmic study on chordal and related graphs, *National Natural Science Foundation of China (NSFC)*, 61972330, CN¥600,000, 01/2020–12/2023.
8. Approximation algorithms for phylogenetic networks, *Hong Kong Research Grants Council (RGC)*, 15221420, HK\$718,234 + HK\$10,000, 01/2021–12/2023 (taken over from Jesper Jansson).
9. (Parameterized) complexity of graph edge editing problems, *National Natural Science Foundation of China (NSFC)*, 62372394, CN¥500,000, 01/2024–12/2027.

PUBLICATIONS

Books and conference proceedings

1. Yixin Cao and Jianer Chen, editors.
Computing and Combinatorics, Lecture Notes in Computer Science vol. 10392, Springer, isbn 978-3-319-62388-7, 2017. doi:10.1007/978-3-319-62389-4.
2. Yixin Cao and Marcin Pilipczuk, editors.
The 15th International Symposium on Parameterized and Exact Computation (IPEC 2020), Schloss Dagstuhl - Leibniz-Zentrum für Informatik, vol. 180, isbn 978-3-95977-172-6, 2020. doi:10.4230/LIPIcs.IPEC.2020.0.
3. Yixin Cao, Siu-Wing Cheng, and Minming Li, editors.
The 31st International Symposium on Algorithms and Computation (ISAAC 2020), Schloss Dagstuhl - Leibniz-Zentrum für Informatik, vol. 181, isbn 978-3-95977-173-3, 2020. doi:10.4230/LIPIcs.ISAAC.2020.0.

Journal special issues

1. Yixin Cao and Jianer Chen, guest editors.
Journal of Combinatorial Optimization, special issue on Computing and Combinatorics, 37, 2019. doi:10.1007/s10878-019-00392-3
2. Yixin Cao and Jianer Chen, guest editors.
Algorithmica, special issue on Computing and Combinatorics, 81:11, 2019. doi:10.1007/s00453-019-00632-2.
3. Yixin Cao, guest editor.
Theoretical Computer Science, special issue on Computing and Combinatorics, 818, 2020. doi:10.1016/j.tcs.2020.04.001.
4. Yixin Cao and Marcin Pilipczuk, guest editors.
Algorithmica, special issue on Parameterized and Exact Computation, 84:8, 2022. doi:10.1007/s00453-022-00998-w.

Journal articles

1. Yixin Cao and Jianer Chen.
Cluster editing: Kernelization based on edge cuts.
Algorithmica, 64(1):152–169, 2012. doi:10.1007/s00453-011-9595-1.
2. Yixin Cao, Jianer Chen, and Jia-Hao Fan.
An $O^*(1.84^k)$ parameterized algorithm for the multiterminal cut problem.
Information Processing Letters, 114(4):167–173, 2014. doi:10.1016/j.ip1.2013.12.001.
3. Yixin Cao and Dániel Marx.
Interval deletion is fixed-parameter tractable.
ACM Transactions on Algorithms, 11(3), Article 21, 2015. doi:10.1145/2629595.
4. Yunlong Liu, Jianxin Wang, Jie You, Jianer Chen, and Yixin Cao (✉).
Edge deletion problems: Branching facilitated by modular decomposition.
Theoretical Computer Science, 573:63–70, 2015. doi:10.1016/j.tcs.2015.01.049.

5. Yixin Cao, Jianer Chen, and Yang Liu.
On feedback vertex set: New measure and new structures.
Algorithmica, 73(1):63–86, 2015. doi:10.1007/s00453-014-9904-6.
6. Yixin Cao and Dániel Marx.
Chordal editing is fixed-parameter tractable.
Algorithmica, 75(1):118–137, 2016. doi:10.1007/s00453-015-0014-x.
7. Yixin Cao, Luciano N. Grippo, and Martín D. Safe.
Forbidden induced subgraphs of normal Helly circular-arc graphs: Characterization and detection.
Discrete Applied Mathematics, 216(1):67–83, 2017. doi:10.1016/j.dam.2015.08.023.
8. Wenjun Li, Yixin Cao, Jianer Chen, and Jianxin Wang.
Deeper local search for parameterized and approximation algorithms for maximum internal spanning tree.
Information and Computation, 252:187–200, 2017. doi:10.1016/j.ic.2016.11.003.
9. Jie You, Jianxin Wang, and Yixin Cao (✉).
Approximate association via dissociation.
Discrete Applied Mathematics, 219:202–209, 2017. doi:10.1016/j.dam.2016.11.007.
10. Yixin Cao.
Unit interval editing is fixed-parameter tractable.
Information and Computation, 253(1):109–126, 2017. doi:10.1016/j.ic.2017.01.008.
11. Yuping Ke, Yixin Cao (✉), Xiating Ouyang, Wenjun Li, and Jianxin Wang.
Unit interval vertex deletion: Fewer vertices are relevant.
Journal of Computer and System Sciences, 95:109–121, 2018. doi:10.1016/j.jcss.2018.01.001.
12. Yixin Cao, Yuping Ke, Yota Otachi, and Jie You.
Vertex deletion problems on chordal graphs.
Theoretical Computer Science, 745:75–86, 2018. doi:10.1016/j.tcs.2018.05.039.
13. Yixin Cao and R. B. Sandeep.
Minimum fill-in: Inapproximability and almost tight lower bounds.
Information and Computation, 271, Article 104514, 2020. doi:10.1016/j.ic.2020.104514.
14. Hanchun Yuan, Yuping Ke, and Yixin Cao (✉).
Polynomial kernels for paw-free edge modification problems.
Theoretical Computer Science, 891:1–12, 2021. doi:10.1016/j.tcs.2021.08.015.
15. Meibiao Zou, Zhifeng Wang, Jianxin Wang, and Yixin Cao (✉).
End vertices of graph searches on bipartite graphs.
Information Processing Letters, 173, Article 106176, 2022. doi:10.1016/j.ipl.2021.106176.
16. Yixin Cao, Ashutosh Rai, R. B. Sandeep, and Junjie Ye.
A polynomial kernel for diamond-free editing.
Algorithmica, 84:197–215, 2022. doi:10.1007/s00453-021-00891-y.
17. Wenjun Li, Junjie Ye, and Yixin Cao (✉).
A $5k$ -vertex kernel for P_2 -packing.
Theoretical Computer Science, 910:1–13, 2022. doi:10.1016/j.tcs.2022.01.032.
18. Guozhen Rong, Yixin Cao (✉), Jianxin Wang, and Zhifeng Wang.
Graph searches and their end vertices.
Algorithmica, 84:2642–2666, 2022. doi:10.1007/s00453-022-00981-5.
19. Gabriel Bathie, Nicolas Bousquet, Yixin Cao, Yuping Ke, and Théo Pierron.
(Sub)linear kernels for edge modification problems toward structured graph classes.
Algorithmica, 84:3338–3364, 2022. doi:10.1007/s00453-022-00969-1.

Referred conference papers

1. Yixin Cao, Jianer Chen, and Yang Liu.
On feedback vertex set: New measure and new structures.
In *SWAT 2010*, pages 93–104. doi:10.1007/978-3-642-13731-0_10.
2. Yixin Cao and Jianer Chen.
Cluster editing: Kernelization based on edge cuts.
In *IPEC 2010*, pages 60–71. doi:10.1007/978-3-642-17493-3_8.
3. Yixin Cao and Jianer Chen.
On parameterized and kernelization algorithms for the hierarchical clustering problem.
In *TAMC 2013*, pages 319–330. doi:10.1007/978-3-642-38236-9_29.
4. Yixin Cao, Jianer Chen, and Jia-Hao Fan.
An $O^*(1.84^k)$ parameterized algorithm for the multiterminal cut problem.
In *FCT 2013*, pages 84–94. doi:10.1007/978-3-642-40164-0_11.
5. Yixin Cao and Dániel Marx.
Interval deletion is fixed-parameter tractable.
In *SODA 2014*, pages 122–141. doi:10.1137/1.9781611973402.9.
6. Yixin Cao and Dániel Marx.
Chordal editing is fixed-parameter tractable.
In *STACS 2014*, pages 214–225. doi:10.4230/LIPIcs.STACS.2014.214.
7. Xiaochun Cao, Xiao Wang, Di Jin, Yixin Cao, and Dongxiao He.
The (un)supervised detection of overlapping communities as well as hubs and outliers via (Bayesian) NMF.
In *WWW (companion) 2014*, pages 233–234. doi:10.1145/2567948.2577307.
8. Yixin Cao.
Direct and certifying recognition of normal Helly circular-arc graphs in linear time.
In *FAW 2014*, pages 13–24. doi:10.1007/978-3-319-08016-1_2.
9. Yixin Cao.
Unit interval editing is fixed-parameter tractable.
In *ICALP 2015*, pages 306–317. doi:10.1007/978-3-662-47672-7_25.
10. Wenjun Li, Jianxin Wang, Jianer Chen, and Yixin Cao (✉).
A $2k$ -vertex kernel for maximum internal spanning tree.
In *WADS 2015*, pages 495–505. doi:10.1007/978-3-319-21840-3_41.
11. Yixin Cao.
Linear recognition of almost interval graphs.
In *SODA 2016*, pages 1096–1115. doi:10.1137/1.9781611974331.ch77.
12. Jie You, Jianxin Wang, and Yixin Cao (✉).
Approximate association via dissociation.
In *WG 2016*, pages 13–24. doi:10.1007/978-3-662-53536-3_2.
13. Yixin Cao and R. B. Sandeep.
Minimum fill-in: Inapproximability and almost tight lower bounds.
In *SODA 2017*, pages 875–880. doi:10.1137/1.9781611974782.55.
14. Yixin Cao, Yuping Ke, Yota Otachi, and Jie You.
Vertex deletion problems on chordal graphs.
In *FSTTCS 2017*, pages 22:1–22:14. doi:10.4230/LIPIcs.FSTTCS.2017.22.
15. Yixin Cao.
A naive algorithm for feedback vertex set.
In *SOSA 2018*, pages 1:1–1:8. doi:10.4230/OASIcs.SOSA.2018.1.

16. Wenjun Li, Junjie Ye, and Yixin Cao (✉).
Kernelization for P_2 -packing: A gerrymandering approach.
In *FAW 2018*, pages 140–153. doi:10.1007/978-3-319-78455-7_11.
17. Yixin Cao, Ashutosh Rai, R. B. Sandeep, and Junjie Ye.
A polynomial kernel for diamond-free editing.
In *ESA 2018*, pages 10:1–10:13. doi:10.4230/LIPIcs.ESA.2018.10.
18. Jie You, Yixin Cao, and Jianxin Wang.
Local coloring: New observations and new reductions.
In *FAW 2019*, pages 51–62. doi:10.1007/978-3-030-18126-0_5.
19. Yixin Cao, Guozhen Rong, Jianxin Wang, and Zhifeng Wang.
Graph searches and their end vertices.
In *ISAAC 2019*, pages 1:1–1:18. doi:10.4230/LIPIcs.ISAAC.2019.1.
20. Yixin Cao, Yuping Ke, and Hanchun Yuan.
Polynomial kernels for paw-free edge modification problems.
In *TAMC 2020*, pages 37–49. doi:10.1007/978-3-030-59267-7_4.
21. Yixin Cao, Guozhen Rong, and Jianxin Wang.
Characterization and linear-time recognition of paired threshold graphs.
In *WG 2020*, pages 298–309. doi:10.1007/978-3-030-60440-0_24.
22. Yixin Cao.
Recognizing (unit) interval graphs by zigzag graph searches.
In *SOSA 2021*, pages 92–106. doi:10.1137/1.9781611976496.11.
23. Yixin Cao and Shenghua Wang.
Complementation in t -perfect graphs.
In *WG 2021*, pages 106–117. doi:10.1007/978-3-030-86838-3_8.
24. Yixin Cao and Yuping Ke.
Improved kernels for edge modification problems.
In *IPEC 2021*, pages 13:1–13:14. doi:10.4230/LIPIcs.IPEC.2021.13.
25. Yixin Cao.
Enumerating maximal induced subgraphs.
In *ESA 2023*, 31:1–31:13. doi:10.4230/LIPIcs.ESA.2023.31.
26. Yixin Cao, Jianxin Wang, and Hanchun Yuan.
Modification problems toward proper (Helly) circular-arc graphs.
In *MFCS 2023*, pages 31:1–31:14. doi:10.4230/LIPIcs.MFCS.2023.31.
27. Yixin Cao, Haowei Chen, and Shenghua Wang.
Self-complementary (pseudo-)split graphs.
In *LATIN 2024, Part II*, pages 3–18. doi:10.1007/978-3-031-55601-2_1.

Manuscripts under review

1. Yixin Cao and Shenghua Wang.
On fork-free t -perfect graphs.
arXiv:2211.03538.
2. Yixin Cao.
Recognition of circular-arc graphs: mind the wheels.
3. Tian Bai, Yixin Cao, and Mingyu Xiao.
Feedback set problems on (planar) graphs of bounded degrees.
4. Yixin Cao, Jan Derbisz, and Tomasz Krawczyk.
Characterization of circular-arc graphs: I. split graphs
arXiv:2403.01947.

5. Yixin Cao and Tomasz Krawczyk.
Characterization of circular-arc graphs: II. chordal graphs
6. Dhanyamol Antony, Yixin Cao, Sagartanu Pal, and R.B. Sandeep.
Switching classes: characterization and computation.
arXiv:2403.04263.
7. Yixin Cao, Ling Gai, Jingyi Liu, and Jianxin Wang.
Minimum sum vertex cover: kernelization and parameterized algorithms.
arXiv:2403.18497.

Other technical writings

1. Yixin Cao and Gabriel Dos Reis.
Computing with unknowns in computer algebra systems.
In *PLMMS 2008*, pages 2–15.
2. Yixin Cao.
Review of flows in networks by L. R. Ford Jr. and D. R. Fulkerson.
SIGACT News, 44(2):28–30, 2013. doi:10.1145/2491533.2491542.

TALKS

1. On feedback vertex set: New measure and new structures. The 12th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT'10), Bergen, Norway, June, 2010.
2. On kernelization of clustering problems. School of Information Science and Engineering, Central South University, Changsha, China, July, 2010.
3. An $O^*(1.84^k)$ parameterized algorithm for the multiterminal cut problem. The 19th International Symposium on Fundamentals of Computation Theory (FCT'13), Liverpool, UK, August, 2013.
4. Chordal editing is fixed-parameter tractable. The 31st International Symposium on Theoretical Aspects of Computer Science (STACS'14), Lyon, France, March, 2014.
5. Direct and certifying recognition of normal helly circular-arc graphs in linear time. The 8th International Frontiers of Algorithms Workshop (FAW'14), Zhangjiajie, China, June, 2014.
6. Interval graphs and (normal Helly) circular-arc graphs.
 - August 2014, Workshop on Combinatorial and Continuous Optimization, Beijing, China.
 - July 2018, Constrained Recognition Problems (ICALP Workshop), Prague, Czech.
7. Interval deletion is fixed-parameter tractable.
 - February, 2013, Algorithms Seminar, Department of Informatics, University of Bergen, Bergen, Norway.
 - December, 2013, School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu, China.
 - November, 2013, School of Information Science and Engineering, Central South University, Changsha, China.
 - December, 2013, School of Computer Science and Engineering, Beihang University, Beijing, China.
 - December, 2013, Institute for Interdisciplinary Information Sciences (IIIS), Tsinghua University, Beijing, China.
8. Graph modification problems and their parameterized complexity.
 - December 2014, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China.
 - April, 2015, School of Computer Science, Shandong University, Jinan, China.
 - June, 2016, School of Mathematical Sciences, Nanjing Normal University, Nanjing, China.

9. Unit interval editing is fixed-parameter tractable, the 42nd International Colloquium on Automata, Languages, and Programming (ICALP'15).
10. A $2k$ -vertex kernel for maximum internal spanning tree, the 14th International Symposium on Algorithms and Data Structures (WADS'15).
11. Linear recognition of almost interval graphs.
 - February, 2014, Dagstuhl Seminar 14071: Graph Modification Problems, Schloss Dagstuhl, Germany.
 - May, 2014, the 7th Annual Meeting of Asian Association for Algorithms and Computation (AAAC'14), Hangzhou, China.
 - March, 2015, the ELC Workshop on Parameterized Algorithms Tokyo, Japan.
 - January 2016, the 27th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA'16), Arlington, Virginia.
12. Birds of a feather flock together: Modular decomposition and its algorithmic applications.
 - January 2016, Central South University, Changsha, China.
 - January 2016, Georgia State University, Atlanta, Georgia.
 - February 2016, Hong Kong University of Science and Technology, Hong Kong, China.
 - February 2016, Hong Kong Polytechnic University. (For visiting undergraduate students from Nanjing University, China.)
 - April 2016, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China.
 - April 2016, Beijing University of Technology, Beijing, China.
 - June 2016, SIAM Conference on Discrete Mathematics, Atlanta, Georgia.
13. The hardness of minimum fill-in: A dark secret of the old Chinese art.
 - August 2016, Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China.
 - October 2016, Chinese University of Hong Kong, Hong Kong, China.
 - October 2016, Shanghai University of Finance and Economics, Shanghai, China.
 - February 2017, Hong Kong Polytechnic University. (For visiting undergraduate students from Nanjing University, China.)
14. The storage and computation of large sparse matrices: Algorithms and complexity
 - May 2017, CCF Elite Forum, Beijing, China.
 - July 2017, Institute of Computational Mathematics and Scientific/Engineering Computing, Chinese Academy of Sciences, Beijing, China.
 - November 2017, Zhejiang Normal University, Jinhua, China.
 - January 2018, University of Science and Technology of China, Hefei, China.
 - June 2018, University of Electronic Science and Technology of China, Chengdu, China.
15. A naive algorithm for feedback vertex set
 - November 2017, Zhejiang University, Hangzhou, China.
 - January 2018, the 1st Symposium on Simplicity in Algorithms (SOSA 2018), New Orleans, Louisiana.
 - March 2018, Hong Kong Polytechnic University. (For visiting undergraduate students from Nanjing University, China.)
 - May 2018, The 11th Annual Meeting of the Asian Association for Algorithms and Computation (AAAC 2018), Beijing, China.
16. An $O(k^4)$ kernel for unit interval vertex deletion, June 2018, SIAM Conference on Discrete Mathematics, Denver, Colorado.
17. Who is the last?: Graph searches and their end vertices.
 - April 2019, Shandong University, Jinan, China.
 - May 2019, 2019年中国运筹学会排序分会学术交流会, Fuzhou, China.
 - June 2019, Lanzhou University, Lanzhou, China.
18. A polynomial kernel for diamond-free editing, June 2019, Workshop on Kernelization, Bergen, Norway.

19. Enumerating maximal induced subgraphs.
 - July 2019, IBS Summer Research Program on Algorithms and Complexity in Discrete Structures, Daejeon, South Korea.
 - August 2019, Institute of Logic and Computation, Vienna University of Technology, Vienna, Austria.
 - November 2020, Shanghai Jiao Tong University, Shanghai, China.
 - May 2023, University of Electronic Science and Technology of China, Chengdu, China.
 - May 2023, Huazhong University of Science and Technology, Wuhan, China.
20. Complementation in t -perfect graphs.
 - October 2020, 中国运筹学会第十一次全国会员代表大会暨第十五次学术交流会 (ORSC 2020), Hefei, China.
 - April 2022, Shandong University, Jinan, China.
21. Recognizing (unit) interval graphs by zigzag graph searches.
 - January 2021, the 4th Symposium on Simplicity in Algorithms (SOSA 2021).
 - March 2021, Virtual Discrete Math Colloquium, Discrete Mathematics Group (DIMAG), Institute for Basic Science (IBS), South Korea (online).
22. Improved kernels for edge modification problems.
 - June 2021, Parameterized Complexity Seminar, India (online).
23. Recognition of circular-arc graphs: mind the wheels.
 - April 2023, Complexity & Algorithms Workshop, Jinan, China.
24. Graphs for non-graph problems.
 - March 2023, South China Normal University (CCF走进高校), Guangzhou, China.
 - March 2023, Dongguan University of Technology (CCF走进高校), Dongguan, China.
25. T -perfect graphs: known and unknown.
 - May 2023, 中国运筹学会数学规划分会第十四届全国数学优化学术会议暨第七次会员代表大会 (MOS2023), Chengdu, China.
 - July 2023, Yunnan University, Kunming, China.
 - July 2023, Beijing University of Technology, Beijing, China.
 - July 2023, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China.

PROFESSIONAL ACTIVITIES

Editorial Responsibilities:

- Guest co-editor, special issue of *Algorithmica*, 2017
- Guest co-editor, special issue of *Journal of Combinatorial Optimization*, 2017
- Guest co-editor, special issue of *Theoretical Computer Science*, 2017
- 特邀编审, 《计算机科学》“理论计算机科学”专栏 (正刊), 2019–20。

Steering committee:

- International Symposium on Parameterized and Exact Computation (IPEC), 2019–2022.

Program (co-)chair:

- The 23rd Annual International Computing and Combinatorics Conference (COCOON'17).
- The 31st International Symposium on Algorithms and Computation (ISAAC'20).
- The 15th International Symposium on Parameterized and Exact Computation (IPEC'20)

Program committee:

- The 8th International Frontiers of Algorithmics Workshop (FAW'14).
- The 20th Annual International Computing and Combinatorics Conference (COCOON'14).
- The 9th International Frontiers of Algorithmics Workshop (FAW'15).
- The 21st Annual International Computing and Combinatorics Conference (COCOON'15).
- The 13th Annual Conference on Theory and Applications of Models of Computation (TAMC'16).
- The 10th International Frontiers of Algorithmics Workshop (FAW'16).
- The 22nd Annual International Computing and Combinatorics Conference (COCOON'16).

- The 11th International Symposium on Parameterized and Exact Computation (IPEC'16).
- The 28th International Symposium on Algorithms and Computation (ISAAC'17).
- The 13th International Frontiers of Algorithmics Workshop (FAW'19).
- The 39th IEEE International Conference on Distributed Computing Systems (ICDCS 2019).
- The 4th International Workshop on Enumeration Problems and Applications (WEPA 2020).
- The 49th International Colloquium on Automata, Languages, and Programming (ICALP 2022).
- The 17th Annual Conference on Theory and Applications of Models of Computation (TAMC 2022).
- The 28th Annual International Computing and Combinatorics Conference (COCOON 2022).
- The 49th International Workshop on Graph-Theoretic Concepts in Computer Science (WG 2023).
- The 34th International Symposium on Algorithm and Computation (ISAAC 2023).
- The 29th Annual International Computing and Combinatorics Conference (COCOON 2023).
- The 30th Annual International Computing and Combinatorics Conference (COCOON 2024).
- The 32nd Annual European Symposium on Algorithms (ESA 2024).

Referee for research grants:

- National Natural Science Foundation of China (NSFC), 2017, 2019, 2023.
- Natural Sciences and Engineering Research Council of Canada (NSERC), 2021.

Referee for submissions to journals:

- ACM Transactions on Algorithms
- ACM Transactions on Computation Theory
- ACM Transactions on Sensor Networks
- Algorithmica
- Arkiv för Matematik
- Discrete Applied Mathematics
- IEEE/ACM Transactions on Computational Biology and Bioinformatics
- Information and Computation
- Information Processing Letters
- Journal of Combinatorial Optimization
- Journal of Computer and System Sciences
- Journal of Discrete Algorithms
- Optimization Letters
- SIAM Journal on Computing
- SIAM Journal on Discrete Mathematics
- Theoretical Computer Science
- Theory of Computing Systems

Reviewer for submissions to conferences:

- IPEC'10
- MFCS'11, IPEC'11
- SODA'13, IPEC'13, COCOA'13
- ICALP'14, ESA'14
- ICALP'15, ESA'15, IPEC'15
- STACS'16, LATIN'16, SWAT'16, ICALP'16, ESA'16, ISAAC'16
- SODA'17, ICALP'17, FOCS'17
- STACS'18, SWAT'18, ESA'18, ISAAC'18
- WADS'19, CIAC'19, ESA'19, MFCS'19
- ICALP'20, SWAT'20, WG'20
- ICALP'21, WG'21, ISAAC'21
- STOC'22, IPCO'22, ESA'22, MFCS'22, ISAAC'22
- SODA'23, WADS'23, MFCS'23
- SODA'24, SWAT'24, WG'24

Event organizer:

- January 2017, The Hong Kong Theory Day 2017.
- August 2017, The 23rd Annual International Computing and Combinatorics Conference (COCOON'17).
- June 2018, Minisymposium on “Modification problems to discrete structures” at 2018 SIAM Conference on Discrete Mathematics (Part I, Part II).
- May 2021, Minisymposium on “Algorithms for interval graphs and related families” at CanaDAM 2021.

- July 2023, 2023 CCF Forum for Distinguished Ph.D. Candidates in Theoretical Computer Science (CCF全国理论计算机科学优秀博士生论坛), Hong Kong, China.
- May 2024, the 2024 Annual Conference on Theory and Applications of Models of Computation (TAMC), Hong Kong, China.

Membership:

- Association for Computing Machinery (ACM)
- Society for Industrial and Applied Mathematics (SIAM)
- 中国计算机学会高级会员 (Senior member of the China Computer Federation, CCF)
 - 理论计算机科学专业委员会常务委员 (2019–)
- 中国运筹学会终身会员 (Life member of the Operations Research Society of China)
 - 图论组合分会第五、六届理事 (2019–)
 - 数学规划分会第八届理事 (2023–)
 - 整数规划与组合优化支部副主任 (2023–)

INSTITUTIONAL SERVICES

- Departmental Student Exchange Liaison Officer, July 2019–.
- Departmental Internationalization Officer, July 2020–.
- Programme Leader of BSc (Hons) Scheme in Computing — IT Stream, July 2021–.
- Coordinator of Scheme “X + Artificial Intelligence & Data Analytics” (X + AIDA), July 2021–June 2022.
- Member of the Departmental Learning and Teaching Committee (DLTC), July 2021–.
- Member of the Faculty Student Exchange and Scholarship Committee, September 2021–September 2025.
- Member of the Departmental Staffing Committee (DSC), September 2021–August 2025.
- Member of the Department Management Committee (DMC), September 2021–September 2023.

SUPERVISING AND MENTORING EXPERIENCE

Hong Kong Polytechnic University

- Rémi Watrigant, Postdoc, 10/2014–08/2015.
- Shaohua Li, Research assistant, 09/2015–01/2016.
- Jie You, Research assistant, 09/2015–03/2018.
- Jinshan Gu, Undergraduate research assistant, 10/2015–07/2018.
- Xiating Ouyang, Undergraduate research assistant, 10/2015–07/2018.
- Yuping Ke, Research assistant, 11/2015–07/2019.
- Balakrishnan B. Sandeep, Research assistant, 02/2016–04/2016.
- Zhenyuan Ma, Undergraduate research assistant, 06/2016–04/2018.
- Junjie Ye, Postdoc, 07/2016–07/2019.
- Nanqing Huang, Research assistant, 10/2016–12/2016.
- Ashutosh Rai, Postdoc, 10/2016–07/2018.
- Ying Jiao, Undergraduate research assistant, 02/2017–01/2018.
- Ziyi Wen, Undergraduate research assistant, 02/2017–05/2019.
- Yufei Zheng, Undergraduate research assistant, 02/2017–01/2018.
- Xiaowei Wu, Postdoc, 01/2018–07/2018.
- Mingrui Cheng, Undergraduate research assistant, 01/2018–04/2018.
- Yiu Chau Tam, Undergraduate research assistant, 01/2018–05/2018.
- Xi Wen, Undergraduate research assistant, 01/2018–04/2020.
- Shenghua Wang, Ph.D. Student, 08/2019–12/2023.
- Yuping Ke, Ph.D. Student, 08/2019–05/2023.
- Haowei Chen, Research assistant, 12/2021–08/2022.
- Liu Chenxi, Undergraduate research assistant, 01/2023–.
- Mingxin Guo, Research assistant, 02/2023–05/2023.
- Xu Ying, Research assistant, 07/2023–.

Mentees at other universities

- Wenjun Li, Ph.D. student, Central South University, 2012–2014.
- Jie You, Ph.D. student, Central South University, 06/2014–09/2015.
- Shaohua Li, Master student, Central South University, 06/2015–09/2015.

- Yuping Ke, Master student, Central South University, 06/2015–11/2015.

TEACHING EXPERIENCE

Hong Kong Polytechnic University

- Advanced topics in optimization, Spring 2015, Spring 2016, Spring 2020, Fall 2020.
- Advanced topics in computer algorithms, Fall 2016, Spring 2018, Fall 2021.
- Data structures, Fall 2015–2023.
- Database systems, Fall 2017.
- Design and analysis of algorithms, Spring 2017.
- Discrete mathematics, Spring 2019.
- Optimization and applications, Fall 2019, Spring 2021–2023.
- Principles of programming, Fall 2014, Fall 2015.
- Statistical Tools and Applications, Spring 2019.

Others

- Operating system, Fall 2007 & Spring 2008. Texas A&M University, teaching assistant.
- Advanced algorithms, Summer 2010. (Central South University, guest lecturer)
- Data structures and algorithms, Fall 2011 & Spring 2012. Texas A&M University, teaching assistant.
- CCF summer school on algorithmic graph theory, August 2020. China Computer Federation.

WORK EXPERIENCE

Lianchuang Technology Inc., Nanjing, China

04/2003–07/2007