**Research Output (journal articles, conference papers, book chapters, software)**

Note: A “\*” before the author name means he/she is my postdoc. fellow, graduate student, or research assistant.

**Ph.D. Thesis**

**R. Cheng**. *Managing Uncertainty in Constantly-Evolving Environments*. Ph.D thesis, Purdue University, 2005.

**Journal Papers**

* All articles below are international and have been externally refereed.
* A “[I]” before the publication indicates that the paper is important (i.e., published in top international journals or conferences).
1. **[I] M. Najafi\*,** [**C. Ma**](https://dblp.uni-trier.de/pid/251/5251.html)***\*****,* **X. Li\*, R. Cheng***,* and [L. Lakshmanan](https://dblp.uni-trier.de/pid/l/LVSLakshmanan.html)*.* *MOSER: Scalable Network Motif Discovery Using Serial Test.*  In Proc. VLDB Endow.Also in the Very Large Databases Conf. (**VLDB 2023**), Guangzhou, China, 2023. *(My contribution: 30%: I am involved in problem definition, solution development, and paper writing.)*
2. **[I] C. Ma**\*, Y. Fang, **R. Cheng,** L. Lakshmanan, **X. Han,** and **X. Li.** “Accelerating Directed Densest Subgraph Queries with Software and Hardware Approaches,” In the Very Large Data Bases Journal (**VLDBJ**), Springer, *July 2023*. *(My contribution: 20%: I am involved in solution development and paper writing.)*
3. **[I]** T. N. Chan, Z. Li, L. H. U and **R. Cheng**, "PLAME: Piecewise-Linear Approximate Measure for Additive Kernel SVM," in IEEE Transactions on Knowledge and Data Engineering, 6 March 2023, doi: 10.1109/TKDE.2023.3253263. *(My contribution: 20%: I am involved in solution development and paper writing.)*
4. **[I]** M. Yin, L. Tang, C. Webster, **J. Li\***, H. Li, Z. Wu, and **R. Cheng**. *Two-stage Text-to-BIMQL semantic parsing for building information model extraction using graph neural networks.* Automation in Construction, Volume 152, 2023, 104902, ISSN 0926-5805, IF=10.517, Rank 1/138 in civil engineering. <https://doi.org/10.1016/j.autcon.2023.104902>. *(My contribution: 15%: I am involved in paper writing and giving advices.)*
5. J. Sun, S. Wang, C. Yang, Q. Huang, and **R. Cheng**. *Graph Convolutional Neural Networks with Additional Feature Graph*. Chinese Journal of Computers. Volume 46 (9), 2023, pp. 1900-1918.
6. **[I]** [**C. Ma**](https://dblp.uni-trier.de/pid/251/5251.html)***\*****,* **R. Cheng***,* [L. Lakshmanan](https://dblp.uni-trier.de/pid/l/LVSLakshmanan.html)*,* and X. Han*.* *Finding Locally Densest Subgraphs: A Convex-Programming Approach.* [Proc. VLDB Endow. 15](https://dblp.org/db/journals/pvldb/pvldb14.html#0009CCSMC21), Issue 11 (2022), pp. 2719-2732.Also in the Very Large Databases Conf. (**VLDB 2022**), Sydney, Australia, Sep 2022. *(My contribution: 40%: I am involved in problem definition, solution development, and paper writing.)*
7. **[I]** [**X.**](https://dblp.org/pid/50/3993-9.html) **Han**\*, **R. Cheng**, T. Grubenmann, and [**C. Ma**](https://dblp.org/pid/251/5251.html)\*. *DeepTEA: Effective and Efficient Online Time-dependent Trajectory Outlier Detection*.[Proc. VLDB Endow. 15](https://dblp.org/db/journals/pvldb/pvldb14.html#0009CCSMC21), Issue 7, pp. 1493-1501 (2022).Also in the Very Large Databases Conf. (**VLDB 2022**), Sydney, Australia, Sep 2022. *(My contribution: 30%: I am involved in problem definition, solution development, and paper writing.)*
8. **[I]** T. N. Chan, L. H. U, **R. Cheng,** M. L. Yiu, and S. Mittal. *Efficient Algorithms for Kernel Aggregation Queries.* In the Transactions on Knowledge and Data Engineering (**IEEE TKDE**), 2022, 34(6), pp. 2726-2739. *(My contribution: 20%: I am involved in solution design and paper writing.)*
9. **[I] Z. Zhu\*, T. N. Chan\*, R. Cheng, L. Do\*, Z. Huang,** and H. Zhang. Effective and Efficient Discovery of Top-k Meta Paths in Heterogeneous Information Networks.  In the Transactions on Knowledge and Data Engineering (**IEEE TKDE**), 2022, 34(9):4172-4185, doi: 10.1109/TKDE.2020.3037218. *(My contribution: 20%: I am involved in problem definition, solution development, and paper writing.)*
10. **R. Cheng**, **C. Ma\***, **X. Li\***, **Y. Fang**\*, **Y. Liu\***, **V. Wong\***, **E. Lee\*,** T. H. Lam, S. Y. Ho, M. P. Wang, W. Gong, **W. Ning\***, and B. Kao. The Social Technology and Research (STAR) Lab in the University of Hong Kong, **SIGMOD Record** 51(2), pp. 63-68.
11. A. Zhou, W. Xue, Y. Xiao, B. He, S. Ibrahim, and **R. Cheng**. *Taming System Dynamics on Resource Optimization for Data Processing Workflows.*In IEEE Trans. Parallel Distributed Syst. (IEEE TPDS), 2022, 33(1), pp. 231-248. *(My contribution: 10%: I give advice to the paper.)*
12. J. Nasir, Y. H. Kuo, and **R. Cheng**. *Clustering-based iterative heuristic framework for a non-emergency patients transportation problem.* Journal of Transport & Health, volume 26, 2022, 101411, ISSN 2214-1405,

<https://doi.org/10.1016/j.jth.2022.101411>. *(My contribution: 15%: I am involved in giving advice to the paper.)*

1. **[I] C. Ma\***, Y. Fang, **R. Cheng**, L. Lakshmanan, W. Zhang, and X. Han. *On Directed Densest Subgraph Discovery*. **ACM Transactions on Database Systems (TODS)**, **Best of SIGMOD 2020** (Vol. 46, Issue 4, no. 13), November 2021, pp 1-45. h[ttps://doi.org/10.1145/3483940](https://doi.org/10.1145/3483940) *(My contribution: 20%: I am involved in developing solutions and paper writing.)*
2. **X. Han**\*, D. Dell’Aglio, T. Grubenmann, **R. Cheng**, and A. Bernstein. A framework for differentially-private knowledge graph embeddings, **Journal of Web Semantics**, 2021, 100696, ISSN 1570-8268,

<https://doi.org/10.1016/j.websem.2021.100696>. *(My contribution: 10%: I am involved in giving advice on paper writing and editing.)*

1. **[I]** [**X. Li**](https://dblp.org/pid/50/3993-9.html)\*, **R. Cheng**, K. C.-C. Chang, [**C. Shan**](https://dblp.org/pid/193/1652.html)\*, [**C. Ma**](https://dblp.org/pid/251/5251.html)\*, and [H. Cao](https://dblp.org/pid/276/5053.html). *On Analyzing Graphs with Motif-Paths*.[Proc. VLDB Endow. 14(6)](https://dblp.org/db/journals/pvldb/pvldb14.html#0009CCSMC21): 1111-1123 (2021).Also in the Very Large Databases Conf. (**VLDB 2021**), Copenhagen, Aug 2021. *(My contribution: 30%: I am involved in problem definition, solution development, and paper writing.)*
2. **[I] T. N. Chan**\*, Z. Li, L. H. U, J. Xu, and **R. Cheng**. *Fast Augmentation Algorithms for Network Kernel Density Visualization*.[Proc. VLDB Endow.14(9)](https://dblp.org/db/journals/pvldb/pvldb14.html#ChanLUXC21): 1503-1516 (2021). Also in the Very Large Databases Conf. (**VLDB 2021**), Copenhagen, Aug 2021. *(My contribution: 20%: I am involved in problem definition, solution development, and paper writing.)*
3. **C. Ma\***, Y. Fang, **R. Cheng**, L. Lakshmanan, W. Zhang, and X. Han. *Efficient Directed Densest Subgraph Discovery*. **Research Highlights Award**, March 2021 (Vol. 50, No. 1), **SIGMOD Record.**
4. W.F. Yang, D. Zheng, **R. Cheng**, J. Pu, and X. Su. *Identifying unmet non-COVID-19 health needs during the COVID-19 outbreak based on social media data: a proof-of-concept study in Wuhan city.*Ann Transl Med. 2021;9(18):1403. doi:10.21037/atm-21-1769. *(My contribution: 10%: I am involved in giving advice on paper writing and editing.)*
5. **[I]** D. He, S. Wang, X. Zhou, and **R. Cheng.** *GLAD: A Grid and Labelling Framework with Scheduling for Conflict-Aware kNN Queries*. In the Transactions on Knowledge and Data Engineering (IEEE TKDE), 33(4): 1554-1566 (2021). *(My contribution: 20%: I am involved in problem definition, solution development, and paper writing.)*
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7. V. Yan, **X. Li**\*, X. Ye, M. Ou, R. Luo, q. Zhang, B. Tang, B. Cowling, I. Hung, C. W. Siu, I. Wong, **R. Cheng**, and E. Chan. *Drug Repurposing for the Treatment of COVID-19: A Knowledge Graph Approach.* Accepted in **Advanced Therapeutics**, 20 May 2021 (early access). <https://doi.org/10.1002/adtp.202100055> (*My contribution: 20%: I am involved in conceptualizing the study and paper writing.)*
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10. S. Amer-Yahia, **R. Cheng**, M. Bouadi, A. Chibah, M. Esfandiari, J. Zhou, N. Zhang, E. Lau, Y. Li, **X. Han\***, and **S. Mittal\***. *An ML-Powered Human Behavior Management System*. Special Issue on Human Powered AI Systems, IEEE Data Engineering Bulletin, Sep 2020, Vol. 43, No. 3, pp. 53-64. *(My contribution: 30%: I am involved in paper writing.)*
11. **[I] C. Ma\***, **R. Cheng,** L. Lakshmanan, T. Grubenmann, Y. Fang, and **X. Li**. *LINC: A Motif Counting Algorithm for Uncertain Graphs.* In theProceedings of the VLDB Endowment (**PVLDB**), Sep 2019. Also in the Very Large Databases Conf. (**VLDB 2020**), Tokyo, Aug 2020. *(My contribution: 30%: I am involved in problem definition, solution development, and paper writing.)*
12. **[I]** [**C. Shan**](https://dblp.org/pid/193/1652.html)**\***, N. Mamoulis, G. Li, **R. Cheng**, **Z. Huang\***, and **Y. Zheng\***. *A Crowdsourcing Framework for Collecting Tabular Data*. [IEEE Trans. Knowl. Data Eng. 32(11)](https://dblp.org/db/journals/tkde/tkde32.html#ShanM0C0Z20): 2060-2074 (2020). *(My contribution: 20%: I am involved in problem definition, solution development, and paper writing.)*
13. Y. Qi, J. Cheng, X. Chen, **R. Cheng**, A. Bifet, and P. Wang. *Discriminative Streaming Network Embedding.* Knowl. Based Syst. 190: 105138 (2020). *(My contribution: 15%: I am involved in solution development and paper writing.)*
14. **[I]** Y. Fang, **K. Yu\***, **R. Cheng,** L. Lakshmanan, and X. Han. *Efficient Algorithms for Densest Subgraph Discovery.* InProceedings of the VLDB Endowment (**PVLDB**), 12(11), pp. 1719-1732, July 2019. Also in the Very Large Databases Conf. (**VLDB 2019**), Los Angeles, Aug 2019. *(My contribution: 30%: I am involved in problem definition, solution development, and paper writing.)*
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17. **[I] S. Luo\*, R. Cheng,** B. Kao, X. Xiao, S. Zhou, and **J. Hu**. *ROAM: A Fundamental Routing Query on Road Networks with Efficiency.* In the Transactions on Knowledge and Data Engineering (**IEEE TKDE**), vol. 32, no. 8, pp. 1595-1609, 1 Aug. 2020, doi: 10.1109/TKDE.2019.2906188. *(My contribution: 30%: I am involved in problem definition, solution development, and paper writing.)*
18. Y. Li, Y. Fang, **R. Cheng**, and W. Zhang. *Spatial Pattern Matching: A New Direction for Finding Spatial Objects.* In **SIGSPATIAL** **Special**, Mar 2019, 11(1): Spatial Query Processing and Traffic Simulation, pp. 3-12. *(My contribution: 30%: I am involved in problem definition, solution development, and paper writing.)*
19. **[I] Y. Fang\***, Z. Wang, **R. Cheng**, H. Wang, and **J. Hu\***. *Effective and Efficient Community Search over Large Directed Graphs*. In the Transactions on Knowledge and Data Engineering (**IEEE TKDE**), Early Access, pp. 1-16, ISSN: 1041-4347, 4 Oct 2018. *(My contribution: 20%: I am involved in problem definition, solution development, and paper writing.)*
20. **[I] Z. Huang\*,** B. Cautis, **R. Cheng**, and **Y. Zheng\***, N. Mamoulis, and **J. Yan**. *Entity-Based Query Recommendation for Long-Tail Queries.* In ACM Transactions on Knowledge Discovery from Data (**TKDD**), 12(6), no. 64, pp. 1-24, Aug 2018. *Impact factor: 2.538, cited 3 times. (My contribution: 20%: I am involved in problem definition, solution development, and paper writing.)*
21. **[I] S. Luo\*,** B. Kao, G. Li, **J. Hu\***, **R. Cheng**, and **Y. Zheng\***. *TOAIN: A Throughput Optimizing Adaptive Index for Answering Dynamic kNN Queries on Road Networks.* InProceedings of the VLDB Endowment (**PVLDB**), 11(5), pp. 594-606, Jan 2018. Also in the Very Large Databases Conf. (**VLDB 2018**), Rio De Janeiro, Brazil, Aug 27-31, 2018. *(My contribution: 15%: I give advice to the problem definition, design and paper presentation.)*
22. **[I] Y. Fang\*, Z. Wang\*, R. Cheng, X. Li\*, S. Luo\*, J. Hu\*,** and X. Chen. *On Spatial-Aware Community Search.* In the Transactions on Knowledge and Data Engineering (**IEEE TKDE**), 31(4), pp. 783-798, 8 Jun, 2018. *(My contribution: 20%: I am involved in problem definition, solution development, and paper writing.)*
23. **[I] Y. Fang\***, X. Xie, X. Zhang, **R. Cheng**, andZ. Zhang. *STEM: a suffix tree-based method for web data records extraction.* InKnowledge and Information Systems (**KAIS**), 55(2), pp. 305-331, 2018. *(My contribution: 10%: I give comments to the paper.)*
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25. **[I] Y. Zheng\***, G. Li, Y. Li, **C. Shan\***, and **R. Cheng\***. *Truth Inference in Crowdsourcing: Is the Problem Solved? [Experiments and Analyses].* InProceedings of the VLDB Endowment (**PVLDB**), 10(5), pp. 541-552, Jan 2017, ISSN 2150-8097. Also presented in the Very Large Databases Conf. (**VLDB 2017**), Munich, Germany, Aug 28-Sep 1, 2017. *Impact factor: 2.23 (RG), cited 117 times (My contribution: 15%: This is a joint work with Tsinghua University. I am involved in experiment design and paper writing.)*
26. **[I] Y. Zheng\***, G. Li, and **R. Cheng\***. *DOCS: Domain-Aware Crowdsourcing System.* InProceedings of the VLDB Endowment (**PVLDB**), 10(4), pp. 361-372, Dec 2016, ISSN 2150-8097. Also presented in the Very Large Databases Conf. (**VLDB 2017**), Munich, Germany, Aug 28-Sep 1, 2017. *Impact factor: 2.23 (RG), cited 60 times (My contribution: 30%: This is a joint work with Tsinghua University. I am involved in problem definition, solution development, and paper writing.)*
27. **Y. Fang\***, **R. Cheng**, **S. Luo\***, **J. Hu\***, and **K. Huang\***. *C-Explorer: Browsing Communities in Large Graphs*. InProceedings of the VLDB Endowment (**PVLDB**), 10(11), pp. 1885-1888, Aug 2017, ISSN 2150-8097. Also presented in the 43rd Intl. Conf. on Very Large Data Bases (**VLDB**), Munich, Germany, August 2017. *(My contribution: 40%: I am involved in interface design and paper writing.)*
28. **[I] J. Hu\*,** X. Wu**, R. Cheng, S. Luo\*,** and **Y. Fang\*.** *On Minimal Steiner Maximum-Connected Subgraphs.*In the Transactions on Knowledge and Data Engineering (**IEEE TKDE**), PP(99), July 2017, ISSN: 1041-4347. *(My contribution: 25%: I am involved in problem definition, solution development, and paper writing.)*
29. **[I] S. Maniu\***, **R. Cheng**, and P. Senellart. *An Indexing Framework for Queries on Probabilistic Graphs.* In ACM Transactions on Database Systems (**TODS**), 42(2), article 13, pp. 1-34, June 2017, ISSN: 0362-5915, *impact factor: 1.900, cited 11 times* *(My contribution: 40%: I am involved in problem definition, solution development, and paper writing.)*
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31. **Y. Fang\***, X. Xie, X. Zhang, **R. Cheng**, andZ. Zhang. *STEM: a suffix tree-based method for web data records extraction.* InKnowledge and Information Systems (**KAIS**), pp. 1-27, May 2017. *(My contribution: 10%: I am involved in solution development, and paper writing.)*
32. K. A. Schmid, A. Zuefle, T. Emrich, M. Renz, and **R. Cheng**. *Uncertain UV cell computation based on space decomposition. (Extended from [68], one of the best papers from SSTD for consideration in Geoinformatica)*In **GeoInformatica**, Springer, ISSN 1573-7624, pp. 1-31, Feb 2017. *(My contribution: 20%: I am involved in problem definition, solution development, and paper writing.)*
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34. **[I] Y. Fang\***, **R. Cheng**, **S. Luo\*,** and **J. Hu**\*. *Effective Community Search for Large Attributed Graphs.* InProceedings of the VLDB Endowment (**PVLDB**), 9(12), pp. 1233-1244, Aug 2016. Also presented in the Very Large Databases Conf. (**VLDB 2016**), New Delhi, India, Sep 5-9, 2016. *Impact factor: 2.23 (RG), cited 64 times (My contribution: 40%: I am involved in problem definition, solution development, and paper writing.)*
35. **[I]** Z. Li, **Y. Fang\***, Q. Liu, J. Cheng, **R. Cheng**, and J. C.S. Lui.*Walking in the Cloud: Parallel SimRank at Scale.* In theProceedings of the VLDB Endowment (**PVLDB**), 9(1), ISSN 2150-8097. Also presented in the Very Large Databases Conf. (**VLDB 2016**), New Delhi, India, Sep 5-9, 2016. *Impact factor: 2.23 (RG), cited 26 times* *(My contribution: 20%; this is a joint work with Huawei Noah’s Ark Lab Hong Kong, where my student Yixiang Fang did this work during his internship in Huawei. I am involved in the solution design and paper writing.)*
36. C. Dai, S. Nutanong, C.Y. Chow, and **R. Cheng**. Entropy-based Scheduling Policy for Cross Aggregate Ranking Workloads. In the IEEE Transactions on Services Computing (**IEEE TSC**), ISSN: 1939-1374, June 2016. *(My contribution: 15%: This is a joint work with City University of Hong Kong. I participated in discussions and edited the paper.)*
37. **[I] Y. Fang\***, **R. Cheng**, W. Tang, **S. Maniu\***, and **X. Yang\***. *Scalable Algorithms for Nearest-Neighbor Joins on Big Trajectory Data.* In the Transactions on Knowledge and Data Engineering (**IEEE TKDE**), pp. 785-800, ISSN: 1041-4347, 28(3), March 2016. *Impact factor: 3.857*, *cited 30 times* *(My contribution: 40%: I am involved in the solution design and paper writing.)*
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40. **[I] Y. Tang**\*, L. H. U, Y. Cai, N. Mamoulis, and **R. Cheng**. [*Earth Mover's Distance based Similarity Search at Scale*](http://www.vldb.org/pvldb/vol7/p313-tang.pdf). InProceedings of the VLDB Endowment (**PVLDB**), 7(4), pp. 313-324, ISSN 2150-8097. Also presented in the Very Large Databases Conf. (**VLDB 2014**), Hangzhou, China, Sep 1-5, 2014. *Acceptance rate: 20%, Impact factor: 2.23 (RG), cited 29 times. (My contribution: 15%: I give advice to the paper.)*
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46. **[I] J. Gong**\*, **R. Cheng,** and D. W. Cheung. *Efficient Management of Uncertainty in XML Schema Matching.* In the Very Large Databases Journal (**VLDBJ**). 21(3), pp. 385-409, Jun 2012. *Impact factor: 1.973; cited 17 times. (My contribution: 40%: I am involved in the design of the solution, experiment design, and writing of the paper.)*
47. **[I] L. Sun\***, **R. Cheng, X. Li\*,** D. Cheung, and J. Han*. On Link-based Similarity Join.* InProceedings of the VLDB Endowment (**PVLDB**), 4(11), pp. 714-725, ISSN 2150-8097. Also presented in the Very Large Databases Conf. (**VLDB 2011**), Seattle, Aug, 2011. *Acceptance rate: 18.1% (100 out of 553 papers); Impact factor: 2.23 (RG), cited 31 times. (My contribution: 30%: I am involved in the problem definition, solution and experiment design, and writing of the paper.)*
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**Conference and Workshop Papers**

\* All articles below are international and have been externally refereed.

1. **[I] W. Ning\*, R. Cheng**, X. Yan, B. Kao, **N. Huo\***, N. Haldar, and B. Tang. *Debiasing Recommendation with Personal Popularity*. In the 2024 Web Conference (WWW), Singapore, May 13-17 2024. *(My contribution: 30%: I am involved in giving technical advice and writing the paper.)*
2. T. N. Chan, Z. Li, L. H. U, and **R. Cheng**. *PLAME: Piecewise-Linear Approximate Measure for Additive Kernel SVM* (Extended Abstract). In the 40th IEEE Intl. Conf. on Data Engineering (**TKDE poster**, **IEEE ICDE 2024**), Utrecht, Netherlands, 13-17th May 2024.*(My contribution: 20%: I am responsible for experiment design and implementation, and writing of the paper.)*
3. **[I] J. Li\*,** B. Hui, **G. Qu\***, B. Li, J. Yang, B. Li, B. Wang, B. Qin, R. Cao, R. Geng, **N. Huo\***, X. Zhou, **C. Ma\***, G. Li, K.C.C. Chang, F. Huang, **R. Cheng**, and Y. Li. *Can LLM Already Serve as a Database Interface? A Big Bench for Large-Scale Database Grounded Text-to-SQLs.* In 37th Conference on Neural Information Processing Systems (NeurIPS), 2023. (*My contribution: 10%: I am involved in giving technical advice to writing the paper and working with Alibaba DAMO lab through my PhD students (J. Li, G. Qu, N. Huo, and C. Ma))*
4. Y. Shao, T. Ng, C. Y. Kwok, S. Fan, and **R. Cheng**. *Underground Railway Station Passenger Flow Prediction Based on Long Short-Term Memory Neural Network.* In ASCE Intl. Conf. on Computing in Civil Engineering (i3CE), Oregon State University, Corvallis, OR, US, June 2023. *(My contribution: 10%: I am involved in giving advice to the paper.)*
5. **[I] W. Ning\***,X. Yan, W. Liu, **R. Cheng**, R. Zhang, and B. Tang. *Multi-domain Recommendation with Embedding Disentangling and Domain Alignment.* In 32nd ACM International Conference on Information and Knowledge Management (CIKM), 2023. *(My contribution: 15%: I am involved in giving technical advice and writing the paper.)*
6. **[I] J. Li\***, B. Hui, **R. Cheng**, B. Qin, **C. Ma\***, **N. Huo**\*, F. Huang, **W. Du\***, L. Si, and Y. Li  *Graphix-T5: Mixing Pre-Trained Transformers with Graph-Aware Layers for Text-to-SQL Parsing.* In AAAI Conference on Artificial Intelligence (AAAI), 2023. *(My contribution: 15%: I am involved in giving technical advice and writing the paper.)*
7. S. Amer-Yahia, **R. Cheng**, N. Bouarour, and **C. Wang\***. Algorithms for Enabling and Verifying Upskilling. In Centre for Information Technology in Education Research Symposium (CITERS 2023), the University of Hong Kong, May 19-20, 2023.
8. **[I] W. Ning\***, **R. Cheng**, J. Shen, N. Haldar, B. Kao, X. Yan, **N. Huo**\*, W. Lam, T. Li, and B. Tang. Automatic Meta-Path Discovery for Effective Graph-Based Recommendation. ACM CIKM Conference 2022, Oct 2022, Atlanta, Georgia, USA. *(My contribution: 30%: I am involved in motivating the problem, designing the solutions, and writing the paper.)*
9. **[I]** [**C. Ma**](https://dblp.uni-trier.de/pid/251/5251.html)**\***, [Y. Fang](https://dblp.uni-trier.de/pid/76/1735.html), **R. Cheng**, [L. Lakshmanan](https://dblp.uni-trier.de/pid/l/LVSLakshmanan.html), and **X. Han**\*. A Convex-Programming Approach for Efficient Directed Densest Subgraph Discovery. ACM SIGMOD Conference 2022, June 2022, Philadelphia, PA, USA. pp. 845-859 *(My contribution: 20%: I am involved in designing the solutions and writing the paper.)*
10. **[I] X. Han\***, **R. Cheng**, T. Grubenmann, S. Maniu, and **C. Ma\***. Leveraging Contextual Graphs for Stochastic Weight Completion in Sparse Road Networks. In SIAM International Conference on Data Mining (**SDM 2022**), April 2022, Alexandria, Virginia, US. *(My contribution: 20%: I am involved in designing the solutions and writing the paper.)*
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13. X. Chen, H. Song, J. Jiang, C. Ruan, C. Li, S. Wang, G. Zhang, **R. Cheng\***, H. Cui. *Achieving Low Tail-latency and High Scalability for Serializable Transactions in Edge Computing*. **EuroSys** 2021: 210-227.
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4. **Y. Fang\***, Z. Wang, **R. Cheng**, H. Wang, and **J. Hu\***. *Effective and Efficient Community Search over Large Directed Graphs* (Extended Abstract). In the 35th IEEE Intl. Conf. on Data Engineering (**TKDE poster**, **IEEE ICDE 2019**), Macau SAR, China, Apr 2019.*(My contribution: 30%: I am responsible for experiment design and implementation, and writing of the paper.)*
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6. A. Zhou, Y. Xiao, B. He, S. Ibrahim, and **R. Cheng**. *Incorporating Probabilistic Optimizations for Resource Provisioning of Data Processing Workflows.*In Proc. 48th Intl. Conf. on Parallel Processing, (**ICPP**), Aug 2019: 6:10-6:10. *(My contribution: 10%: I give advice to the paper.)*
7. **[I] J. Hu\***, **R. Cheng,** K. C. C. Chang, A. Sankar, **Y. Fang\***, and B. Y. H. Lam. *Discovering Motif Cliques in Large Heterogeneous Information Networks.* In the 35th IEEE Intl. Conf. on Data Engineering (**IEEE ICDE 2019**), Macau SAR, China, Apr 2019. *(My contribution: 30%: I am responsible for experiment design and implementation, and writing of the paper.)*
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16. **[I] C. Shan\***, N. Mamoulis, G. Li, **R. Cheng**, **Z. Huang**\*, and **Y. Zheng\***. *T-Crowd: Effective Crowdsourcing for Tabula Data.* In the 34th IEEE Intl. Conf. on Data Engineering (**IEEE ICDE 2018**), Paris, France, Apr 2018. *(My contribution: 15%: I am responsible for experiment design and implementation, and writing of the paper.)*
17. **[I] X. Li\***, **R. Cheng, Y. Fang\*, J. Hu\*,** and S. Maniu. *Scalable Evaluation of k-NN Queries on Large Uncertain Graphs.* In the 21st Intl. Conf. on Extending Database Technology (**EDBT 2018**), Vienna, Austria, Mar 2018. *(My contribution: 40%: I am responsible for experiment design and implementation, and writing of the paper.)*
18. **[I] J. Hu\***, **R. Cheng**, **Z. Huang\***, **Y. Fang\***, and **S. Luo\***. *On Embedding Uncertain Graphs.* In the 26thACM Conf. on Information and Knowledge Management (**ACM CIKM 2017**), Singapore, Nov 6 – Nov 10, 2017. *Acceptance rate: 21% (171/820)*. *(My contribution: 40%: I am involved in problem definition, solution development, and paper writing.)*
19. **[I] S. Luo\***, **J. Hu\***, **R. Cheng**, and B. Kao. *SEQ: Example-based Query for Spatial Objects.* (Short Paper).In the 26thACM Conf. on Information and Knowledge Management (**ACM CIKM 2017**), Singapore, Nov 6 – Nov 10, 2017. *Acceptance rate: 30% (119/398)*. *(My contribution: 30%: I am involved in problem definition, solution development, and paper writing.)*
20. **Y. Xu\***, **R. Cheng**, and **Y. Zheng\***. *Reliable Retrieval of Top-k Tags.* In the 18th Intl. Conf. on Web Information Systems Engineering (**WISE**), Moscow, Russia, October 2017. *Acceptance rate: 25% (49/196).* *(My contribution: 40%: I am involved in problem definition, solution development, and paper writing.)*
21. **[I] J. Hu\*,** X. Wu**, R. Cheng, S. Luo\*,** and **Y. Fang\*.** *Querying Minimal Steiner Maximum-Connected Subgraphs in Large Graphs.*In **CIKM 2016**, pp. 1241-1250, Indianapolis, October 2016*.* *(My contribution: 30%: I am involved in problem definition, solution development, and paper writing.)*
22. **[I] Z. Huang\***, B. Cautis**, R. Cheng**, and **Y. Zheng**\*. *KB-Enabled Query Recommendation for Long-Tail Queries.*In **CIKM 2016**, Indianapolis, October 2016, pp. 2107-2112. *(My contribution: 30%: I am involved in problem definition, solution development, and paper writing.)*
23. **[I] Z. Huang\*, Y. Zheng\*, R. Cheng**, Y. Sun, N. Mamoulis, and X. Li. *Meta Structure: Computing Relevance in Large Heterogeneous Information Networks.*In the 22nd ACM SIGKDD Intl. Conf. on Knowledge Discovery and Data Mining (**KDD 2016**), San Francisco, US, August 2016, *cited 63 times (My contribution: 30%: I am involved in problem definition, solution development, and paper writing.)*
24. **[I]** H. Hu, **Y. Zheng\***, Z. Bao, G. Li, J. Feng, and **R. Cheng**. *Crowdsourced POI Labelling: Location-Aware Result Inference and Task Assignment****.*** In Intl. Conf. on Data Engineering (**IEEE ICDE 2016**), Helsinki, Finland, May 2016, pp. 61-72 *(My contribution: 15%: This is a collaboration with Tsinghua University. I am involved in problem definition, solution development, and paper writing.)*
25. **Y. Fang\***, **R. Cheng**, W. Tang, **S. Maniu\***, and **X. Yang\***. *Scalable Algorithms for Nearest-Neighbor Joins on Big Trajectory Data*. In Intl. Conf. on Data Engineering (**IEEE ICDE 2016**), *TKDE Extended Abstract,* Helsinki, Finland, May 2016. *(My contribution: 40%: I am involved in problem definition, solution development, and paper writing.)*
26. Y. Sun, **H. Sun\***, and **R. Cheng**. *Fast and Semantic Measurements on Collaborative Tagging Quality.* In the Advances in Knowledge Discovery and Data Mining – 20th Pacific-Asia Conference (**PAKDD 2016**), New Zealand, April 2016, pp. 363-375. *(My contribution: 20%: I am involved in problem definition, solution development, and paper writing.)*
27. Z. Li, **Y. Fang\***, Q. Liu, J. Cheng, **R. Cheng**, and J. C.S. Lui.*PASCO: Parallel SimRank Computation at Scale (Poster).* In the ACM Symposium on Cloud Computing (**SoCC 2015)**, Hawaii, August 27-29, 2015. *(My contribution: 20%; this is a joint work with Huawei Noah’s Ark Lab Hong Kong, where my student Yixiang Fang did this work during his internship in Huawei. I am involved in the solution design and paper writing.)*
28. **[I] S. Lei\***, **S. Maniu\***, **L. Mo\*, R. Cheng**, and P. Senellart. *Online Influence Maximization.* In the 21th ACM SIGKDD Intl. Conf. on Knowledge Discovery and Data Mining (**KDD 2015**), Sydney, Australia, August 2015. *Acceptance rate: 19.4% (159 out of 819 papers), cited 79 times (My contribution: 30%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
29. **J. Hu\*, R. Cheng**, D. Wu, and B. Jin. *Efficient Top-k Subscription Matching for Location-Aware Publish/Subscribe.* In the 14th Intl. Symposium on Spatial and Temporal Databases (**SSTD 2015**), Seoul, South Korea, August 2015. *Acceptance rate: 37.5% (24 out of 64 papers)(My contribution: 30%: I am involved in the solution design and paper writing.)*

1. T. Emrich, K. A. Schmid, A. Zuefle, M. Renz, and **R. Cheng**. *Uncertain Voronoi Cell Computation based on Space Decomposition.* In the 14th Intl. Symposium on Spatial and Temporal Databases (**SSTD 2015**), Seoul, South Korea, August 2015. (One of the selected best papers to be extended to be published in [32].) *Acceptance rate: 37.5% (24 out of 64 papers) (My contribution: 20%: this is a joint work with University of Munich. I am involved in the solution design and paper writing.)*
2. **[I] Y. Zheng\***, J. Wang, G. Li, **R. Cheng**, and J. Feng. *QASCA: A Quality-Aware Task Assignment System for Crowdsourcing Applications.* In ACM SIGMOD Intl. Conf. on Management of Data (**SIGMOD 2015**), Melbourne, Victoria, Australia, May 2015. *Acceptance rate: 25.2% (106 out of 415 papers), cited 124 times. (My contribution: 20%: this is a joint work with Tsinghua University, where my student Yudian Zheng did this work during his internship in Tsinghua. I am involved in the solution design and paper writing.)*
3. **[I] C. Meng\***, **R. Cheng, S. Maniu\*,** P. Senellart, and **W. Zhang\***. *Discovering Meta-Paths in Large Heterogeneous Information Networks.* In the 24th Intl. World Wide Web Conf. (**WWW 2015**), Florence, Italy, May 2015. *Acceptance rate: 14.1% (131 out of 929 papers), cited 61 times. (My contribution: 25%: I am involved in the problem definition, solution design, and writing of the paper.)*
4. **[I] Y. Zheng**\*, **R. Cheng**, **L. Mo**\*, and **S. Maniu\***. *On Optimality of Jury Selection in Crowdsourcing.* In the 18th Intl. Conf. on Extending Database Technology (**EDBT 2015**), Brussels, Belgium, Mar 2015. *Acceptance rate: 25.5% (47 out of 184 papers)(My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
5. **S. Maniu\***, **R. Cheng**, and P. Senellart. *ProbTree: A Query-Efficient Representation of Probabilistic Graphs.* In the 1st Intl. Workshop on Big Uncertain Data (**BUDA**), associated with **SIGMOD**, Utah, US, Jun 2014*. (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
6. **[I] W. Zhang\***, **R. Cheng**, and B. Kao. *Evaluating Multi-way Joins over Discounted Hitting Time.* In Intl. Conf. on Data Engineering (**IEEE ICDE 2014**), Chicago, US, Apr 2014. *Acceptance rate: 20.0% (89 out of 446 papers). (My contribution: 40%: I am involved in the problem definition, solution design, and writing of the paper.)*
7. **S. Lei\*, X. Yang\*, L. Mo\*, S. Maniu\*,** and **R. Cheng.** *iTag: Incentive-Based Tagging.* Demo paper, in Intl. Conf. on Data Engineering (**IEEE ICDE 2014**), Chicago, US, Apr 2014 *(My contribution: 20%: I am involved in solution design, and writing of the paper.)*
8. **[I]** C. Ren, **L. Mo**\*, B. Kao, **R. Cheng,** and **D. Cheung**. *CLUDE: An Efficient Algorithm for LU Decomposition over a Sequence of Evolving Graphs.* In the 17th Intl. Conf. on Extending Database Technology (**EDBT 2014**), Athens, Greece, Mar 2014. *Acceptance rate: 20%. (My contribution: 20%: I am involved in the problem definition, solution design, and writing of the paper.)*
9. Y. Sun, H. Xu, and **R. Cheng**. *Privacy Preserving Path Recommendation for Moving User on Location Based Service.* In the 10th IEEE Intl. Conference on Ubiquitous Intelligence and Computing **(UIC 2013**), Italy, Dec 2013 *(My contribution: 10%: I am involved in the problem definition, solution design, and writing of the paper.)*
10. **[I] L. Mo\***, **R. Cheng**, B. Kao, **X. Yang**\*, C. Ren, **S. Lei\***, and **E. Lo**\*. *Optimizing Plurality for Human Intelligence Tasks.* In the 22nd ACM Conf. on Information and Knowledge Management (**ACM CIKM 2013**), San Francisco, Oct 27 – Nov 1, 2013. *Acceptance rate: 16.9% (143 out of 848 papers) (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
11. **[I]** Z. He, P. Wong, B. Kao, E. Lo, and **R. Cheng\***. *Fast Evaluation of Iceberg Pattern-Based Aggregate Queries*. In the 22nd ACM Conf. on Information and Knowledge Management (**ACM CIKM 2013**), San Francisco, Oct 27 – Nov 1, 2013. *Acceptance rate: 16.9% (My contribution: 20%: I am involved in the problem definition, solution design, and writing of the paper.)*
12. **[I] X. Yang\*, R. Cheng, L. Mo\*,** B. Kao, and D. Cheung. *On Incentive-based Tagging.* In Intl. Conf. on Data Engineering (**IEEE ICDE 2013**), Brisbane, Apr 2013. *Acceptance rate: 19.6% (88 out of 450 papers) (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
13. **[I] L. Mo\*, R. Cheng, X. Li\*,** D. Cheung, and **X. Yang**\*. *Cleaning Uncertain Data for Top-k Queries.* In Intl. Conf. on Data Engineering (**IEEE ICDE 2013**), Brisbane, Apr 2013. *Acceptance rate: 19.6% (88 out of 450 papers) (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
14. **[I] P. Zhang\*, R. Cheng,** N. Mamoulis, M. Renz, A. Zuefle, **Y. Tang**\*, and T. Emrich. Voronoi-based Nearest Neighbor Search for Multi-Dimensional Uncertain Databases. In Intl. Conf. on Data Engineering (**IEEE ICDE 2013**), Brisbane, Apr 2013. *Acceptance rate: 19.6% (88 out of 450 papers). (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
15. **[I] Y. Jin\***, **R. Cheng**, B. Kao, K. Y. Lam, and **Y. Zhang**\*. *A Filter-based Protocol for Continuous Queries over Imprecise Location Data.* In the 21st ACM Conf. on Information and Knowledge Management (**ACM CIKM 2012**), Hawaii, Oct 2012. *Acceptance rate: 13.4%. (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
16. **[I]** R. Li, B. Kao, B. Bi, **R. Cheng**, and E. Lo. *DQR: A Probabilistic Approach to Diversified Query Recommendation.* In the 21st ACM Conf. on Information and Knowledge Management (**ACM CIKM 2012**), Hawaii, Oct 2012. *Acceptance rate: 13.4%. (My contribution: 20%: I am involved in the problem definition, solution design, and writing of the paper.)*
17. R. Tang, **R. Cheng**, H. Wu, and S. Bressan. *A Framework for Conditioning Uncertain Relational Data.* In the 23rd Conf. on Database and Expert Systems Applications (**DEXA 2012**), Austria, September 2012. *(My contribution: 20%: I am involved in the problem definition, solution design, and writing of the paper.)*
18. **X. Xie\***, **R. Cheng**, and M. L. Yiu. *Evaluating Trajectory Queries Over Imprecise Location Data*. In the 24th Intl. Conf. on Scientific and Statistical Database Management (**SSDBM** **2012**), Greece, June 2012. *Acceptance rate: 51.6%. (My contribution: 40%: I am involved in the problem definition, solution design, and writing of the paper.)*
19. **[I] J. Gong\***, **R. Cheng**, D. W. Cheung, and J. Cheng. *Evaluating Probabilistic Queries over Uncertain Matching.* In the IEEE Intl. Conf. Data Engineering (**IEEE ICDE 2012**), Washington D.C., April 2012. *Acceptance rate: 17%. (My contribution: 40%: I am involved in the problem definition, solution design, and writing of the paper.)*
20. **[I]** C. K. Chui, **R. Cheng**, B. Kao, and E. Lo. *I/O Efficient Algorithms for Evaluating Pattern-based Aggregate Queries in a Sequence OLAP System.* In the 20th ACM Conf. on Information and Knowledge Management (**ACM CIKM 2011**), Glasgow, Oct 2011. *Acceptance rate: 15%. (My contribution: 20%: I am involved in the problem definition, solution design, and writing of the paper.)*
21. **[I]** B. Bi, S. D. Lee, B. Kao, and **R. Cheng**. *CubeLSI: An Effective and Efficient Method for Searching Resources in Social Tagging Systems.* In the IEEE Intl. Conf. on Data Engineering (**IEEE ICDE 2011**), Hannover, Germany, Apr, 2011. *Acceptance rate: 19.6% (88 out of 450 papers). (My contribution: 20%: I am involved in the problem definition, solution design, and writing of the paper.)*
22. **[I] L. Sun\*,** **R. Cheng**, D. W. Cheung, and **J. Cheng\***. *Mining Uncertain Data with Probabilistic Guarantees*. In the 16th ACM SIGKDD Conf. on Knowledge Discovery and Data Mining (**ACM SIGKDD 2010**), Washington D.C., USA, Jul, 2010 (Full paper). *Acceptance rate: 17%; cited 153 times. (My contribution: 40%: I am involved in the problem definition, solution design, and writing of the paper.)*
23. **[I]** L. Wang, D. W. Cheung, **R. Cheng**, and S. D. Lee.  *Accelerating Probabilistic Frequent Itemset Mining: A Model-Based Approach.* In the ACM 19th Conf. on Information and Knowledge Management (**ACM CIKM 2010**), Toronto, Canada, Oct 2010. **Selected as one of the best papers in CIKM’10** for extension in [J33]. *Acceptance rate: 13.4%. (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
24. Y. Zhang\*, **R. Cheng**,and **J. Chen\***. *Evaluating Continuous Probabilistic Queries over Imprecise Sensor Data*. In the Database Systems for Advanced Applications (**DASFAA**), Apr, 2010 (Full paper). *Acceptance rate: 23.2%. (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
25. **J. Cheng\***, J. X. Yu, and **R. Cheng**. *On-Line Preferential Nearest Neighbor Browsing in Large Attributed Graphs* (**Invited paper**), 1st Intl. Workshop on Graph Data Management: Techniques and Applications (**GDM 2010**), associated with **DASFAA**, Tsukuba, Japan, Apr 2010. *(My contribution: 20%: I am involved in the problem definition, solution design, and writing of the paper.)*
26. **[I] R. Cheng**, **X. Xie**\*, M. L. Yiu, **J. Chen\***, and **L. Sun**\*. *UV-diagram: A Voronoi Diagram for Uncertain Data.* In the IEEE Intl. Conf. on Data Engineering (**IEEE ICDE 2010**), Long Beach, USA, Mar, 2010 (Full paper). *Acceptance rate: 12.5%, cited 53 times. (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
27. **[I] R. Cheng**, **J. Gong\***, and D. Cheung. *Managing Uncertainty of XML Schema Matching.* In the IEEE Intl. Conf. on Data Engineering (**IEEE ICDE 2010**), Long Beach, USA, Mar, 2010 (Full paper). *Acceptance rate: 12.5%. (My contribution: 40%: I am involved in the problem definition, solution design, and writing of the paper.)*
28. **[I]** J. Ren, S. D. Lee, X. Chen, B. Kao, **R. Cheng**, and D. Cheung. *Naïve Bayes Classification of Uncertain Data*. In the IEEE Intl. Conf. on Data Mining (**IEEE ICDM 2009**), Miami, USA, Dec, 2009. *Acceptance rate: 17.8%. (My contribution: 20%: I am involved in the problem definition, solution design, and writing of the paper.)*

1. **[I]** Z. Zhang, **R. Cheng**, D. Papadias, and A. Tung. Minimizing the Communication Cost for Continuous Skyline Maintenance. In Proc. ACM Conf. on Management of Data **(SIGMOD 2009**), Providence, RI, USA, July 2009. *Acceptance rate: 15.9%. (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
2. **[I] R. Cheng,** L. Chen, **J. Chen\***, and **X. Xie\***. *Evaluating Probability Threshold k-Nearest-Neighbor Queries over Uncertain Data.* In the 12th Intl. Conf. on Extending Database Technology (**EDBT 2009**), St. Petersburg, Russia, Mar 2009. *Acceptance rate: 32.5%. (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*

1. **R. Cheng.** *Querying and Cleaning Uncertain Data* **(Invited Paper)**.In the 1st Intl. Workshop on Quality of Context (**QuaCon**), **LNCS,** Springer,Stuttgart, Germany, June 2009, *cited 8 times.*
2. **J. Chen\***, **R. Cheng**, **Y. Zhang**,and **J. Jian.** *A Probabilistic Filter Protocol for Continuous Queries*. In the 1st Intl. Workshop on Quality of Context (**QuaCon**), **LNCS,** Springer, Stuttgart, Germany, June 2009*. (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
3. D. Lin. E. Bertino, **R. Cheng**, and S. Prabhakar. Position Transformation: A Location Privacy Protection Method for Moving Objects. In SIGSPATIAL ACM GIS 2008 Intl. Workshop on Security and Privacy in GIS and LBS (**SPRINGL 2008**), Irvine, CA, USA, November 2008. *(My contribution: 25%: I am involved in the problem definition, solution design, and writing of the paper.)*
4. **J. Chen\*** and **R. Cheng**. *Quality-Aware Probing of Uncertain Data with Resource Constraints.* In 20th Intl. Conf. on Scientific and Statistical Database Management (**SSDBM 2008**), Hong Kong, Jul 2008. Lecture Notes in Computer Science 5069, pp. 491-408, *Acceptance rate: 34.5%. (My contribution: 50%: I am involved in the problem definition, solution design, and writing of the paper.)*
5. **[I] R. Cheng**, **J. Chen\***, M. Mokbel, and C. Chow. *Probabilistic Verifiers: Evaluating Constrained Probabilistic Nearest-Neighbor Queries over Uncertain Data*. In the IEEE Intl. Conf. on Data Engineering (**IEEE ICDE 2008**), Cancun, Mexico, Apr, 2008 (Full paper, full talk). *Acceptance rate: 12.1%; cited 182 times. (My contribution: 40%: I am involved in the problem definition, solution design, and writing of the paper.)*
6. **[I]** S. Singh, R. Shah, S. Prabhakar, S. Hambrusch, C. Mayfield, J. Neville, and **R. Cheng.** Database Support for Probabilistic Attributes and Tuples. In the IEEE Intl. Conf. on Data Engineering (**IEEE ICDE 2008**), Cancun, Mexico, Apr, 2008 (Full paper, short talk). *Acceptance rate: 7.1%. (My contribution: 13%: I am involved in the solution design and writing of the paper.)*
7. **R. Cheng**, D. Yau, and **J. Fu\***. *Packet Cloaking: Protecting Receiver Privacy Against Traffic Analysis.* In the 3rd Workshop on Secure Network Protocols (**NPSec**), with the 15th IEEE Intl. Conf. on Network Protocols (**IEEE ICNP 2007**), Beijing, China, Oct 2007. *(My contribution: 40%: I am involved in the problem definition, solution design, and writing of the paper.)*
8. S. Lee, B. Kao, and **R. Cheng**. *Reducing UK-means to K-means.* In the 1st Workshop on Data Mining of Uncertain Data (**DUNE**), co-located with the IEEE Conf. on Data Mining (**IEEE ICDM 2007**), USA, Oct, 2007 *(My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
9. T. Farrell, **R. Cheng**,and K. Rothermel. *Energy-Efficient Monitoring of Mobile Objects with Uncertainty-Aware Tolerances.* In the 11th Intl. Database Engineering & Applications Symposium (**IDEAS 2007**), Banff, Canada, Sept, 2007. *Acceptance rate: 31.5%. (My contribution: 30%: I am involved in the problem definition, solution design, and writing of the paper.)*
10. Y. Liu and **R. Cheng**. *Intelligent Tutoring System Based on Semantic Multimedia Browsing and Retrieval.* In the 5th Intl. Conf. on Intelligent Multimedia & Ambient Intelligence (**IMAI** **2007**), Information Sciences, 10th Joint Conference, Salt Lake City, Utah, USA, July 2007. *(My contribution: 20%: I am involved in the solution design and writing of the paper.)*
11. **[I] J. Chen\*** and **R. Cheng**. *Efficient Evaluation of Imprecise Location-Dependent Queries.* In the IEEE Intl. Conf. on Data Engineering (**IEEE ICDE 2007**), Istanbul, Turkey, Apr, 2007. *Acceptance rate: 18.5%; cited 140 times. (My contribution: 50%: I am involved in the problem definition, solution design, experiment design, and writing of the paper.)*
12. **[I]** J. Ngai, B. Kao, C. Chui, **R. Cheng,** M. Chau, and K. Yip. *Efficient Clustering of Uncertain Data.* In the IEEE Intl. Conf. on Data Mining (**IEEE ICDM 2006**), Hong Kong, Dec, 2006. *Acceptance rate: 10%; cited 304 times. (My contribution: 15%: I am involved in the design of the solution, experiment design, and writing of the paper.)*
13. **[I] R. Cheng**, S. Singh, S. Prabhakar, R. Shah, J. Vitter, and Y. Xia.  *Efficient Join Processing over Uncertain Data*. In the ACM 15th  Conf. on Information and Knowledge Management (**ACM CIKM 2006**), Arlington, USA, Nov 2006. *Acceptance rate: 15%; cited 113 times. (My contribution: 60%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
14. **[I] R.** **Cheng,** Y. Zhang, E. Bertino, and S. Prabhakar. *Preserving User Location Privacy in Mobile Data Management Infrastructures.* In the Lecture Notes in Computer Science (LNCS), Privacy Enhancing Technology Workshop (**PET 2006**), Cambridge, UK, June 2006, pp. 393-412. *Acceptance rate: 26%; cited 350 times*. *(My contribution: 50%: I am involved in the design of the solution, experiment design, and writing of the paper.)*
15. **[I]** M. Chau**, R. Cheng**, B. Kao, and J. Ng.*Uncertain Data Mining: An Example in Clustering Location Data.* In the Methodologies for Knowledge Discovery and Data Mining, Pacific-Asia Conference (**PAKDD 2006**), Singapore, April 2006, pp. 199-204. *Acceptance rate: 13.4%; cited 210 times. (My contribution: 30%: I am involved in the design of the solution, experiment design, and writing of the paper.)*
16. M. Chau**, R. Cheng,** and B. Kao.*Uncertain Data Mining: A New Research Direction.* Invited Paper, in the Workshop on the Sciences of The Artificial (**WSA**) 2005, National Dong Hwa University, Taiwan, Dec 2005*. (My contribution: 40%: I am involved in the writing of the paper.)*
17. **[I] R. Cheng**, B. Kao, S. Prabhakar, A. Kwan, and Y. Tu. *Adaptive Stream Filters for Entity-based Queries with Non-value Tolerance*. In Very Large Databases Conf. (**VLDB 2005**), Norway, Aug 2005, pp. 37-48.  *Acceptance rate: 16.5% (53 out of 322 papers); cited 56 times. (My contribution: 60%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
18. **[I]** Y. Tao, **R. Cheng**, X. Xiao, W. Ngai, B. Kao, and S. Prabhakar. *Indexing Multi-Dimensional Uncertain Data with Arbitrary Probability Density Functions.* In Very Large Databases Conf. (**VLDB 2005**), Norway, Aug 2005, pp. 922-933. *Acceptance rate: 16.5% (53 out of 322 papers); cited 358 times. (My contribution: 30%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
19. **[I] R. Cheng,** S. Singh, and S. Prabhakar. *U-DBMS: A Database System for Managing Constantly-Evolving Data (Software Demonstration)*. In Very Large Databases Conf. (**VLDB 2005**), Norway, Aug 2005, pp.1271-1274. *Acceptance rate: 16.5% (53 out of 322 papers); cited 131 times. (My contribution: 40%: I am involved in the design of the solution, system design and implementation, and writing of the paper.)*
20. S. Han, E. Chan, **R. Cheng,** and K.Y. Lam. *A Statistics-Based Sensor Selection Scheme for Continuous Probabilistic Queries in Sensor Networks.* In 11th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (**RTCSA 2005**), Hong Kong, Aug 2005, pp. 331-336. *Acceptance rate: 33.3%. (My contribution: 20%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
21. **[I] R. Cheng**, Y. Xia, S. Prabhakar, and R. Shah.  *Change Tolerant Indexing on Constantly Evolving Data.* In Intl. Conf. on Data Engineering (**IEEE ICDE 2005**), Tokyo, Japan, Apr 2005. *Acceptance rate: 12.9%, 67/521. (My contribution: 60%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
22. Y. Xia, S. Prabhakar, S. Lei, **R. Cheng,** and R. Shah. *Indexing Continuously Changing Data with Mean-Variance Tree*. In the 20th Annual ACM Symposium on Applied Computing (**ACM SAC 2005**), Mar 2005. *Acceptance rate: 30%.**(My contribution: 20%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
23. K. Y. Lam, **R. Cheng**, B. Liang, and J. Chau.  *Sensor Node Selection for Execution of Continuous Probabilistic Queries in Wireless Sensor Networks.*In ACM 2nd Intl. Workshop on Video Surveillance and Sensor Networks (**ACM VSSN 2004**), in conjunction with 12th ACM Intl Conf. on Multimedia, pp. 63-71, New York, Oct 2004*.* *(My contribution: 40%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
24. **[I] R. Cheng**, Y. Xia, S. Prabhakar, R. Shah, and J. S. Vitter.  *Efficient Indexing Methods for Probabilistic Threshold Queries over Uncertain Data*. In Very Large Databases Conf. (**VLDB 2004**), pp. 876-887, Toronto, Canada, Sep 2004. *Acceptance rate: 20.2% (55 out of 272 papers); cited 343 times. (My contribution: 50%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
25. **R. Cheng** and S. Prabhakar. *Using Uncertainty to Provide Privacy-Preserving and High-Quality Location-Based Service*. In the **Mobile HCI 2004** workshop on Location Systems Privacy and Control, Glasgow, Sep 2004*. (My contribution: 70%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
26. **[I] R. Cheng**, D. Kalashnikov and S. Prabhakar. *Evaluating Probabilistic Queries over Imprecise Data.* In Proc. of the ACM Special Interest Group on Management of Data (**ACM SIGMOD 2003**), pp. 551-562, June 2003. *Acceptance rate:* *15.2%, 52/342; cited 750 times. (My contribution: 60%: I am involved in the problem definition, design of the solution, experiment design and implementation, and writing of the paper.)*
27. **[I] R. Cheng**, S. Prabhakar, and D. Kalashnikov. *Querying Imprecise Data in Moving Object Environments*.In Proc. of the Intl. Conf. on Data Engineering (**IEEE ICDE 2003**), pp. 723-725, Bangalore, India, March 2003. *Acceptance rate: 13.5%; cited 8 times. (My contribution: 70%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
28. **R. Cheng**. *Updates and View Maintenance in Soft Real-Time Database Systems*. In the 2nd ACM Hong Kong Postgraduate Research Day (**Best Paper Award**), University of Hong Kong, 1999.
29. **[I]** B. Kao, K.Y. Lam, B. Adelberg, **R. Cheng** and T. Lee. *Updates and View Maintenance in Soft Real-Time Database Systems*. In the Intl. Conf. on Information and Knowledge Management (**ACM CIKM 1999**), pp. 300-307, Kansas City, Missouri, USA, Nov 1999. *Acceptance rate: 39%; cited 24 times. (My contribution: 30%: I am involved in the design of the solution, experiment design and implementation, and writing of the paper.)*
30. C. Yip, K. Loo, B. Kao, D. Cheung, and **R. Cheng**. *LGen - A Lattice-Based Candidate Set Generation Algorithm for I/O Efficient Association Rule Mining*. In Methodologies for Knowledge Discovery and Data Mining, Third Pacific-Asia Conference (**PAKDD 1999**), pp. 54-63, Beijing, Apr 1999. *Acceptance Rate: 18.3% (My contribution: 20%: I am involved in the experiment design and implementation, and writing of the paper.)*

**Scholarly Books, Monographs, and Chapters**

1. J. Nasir, Y.-H. Kuo, and **R. Cheng**. Optimizing Operator’s and Users’ Objectives in Non-emergency Patients Transportation. In: Bélanger V., Lahrichi N., Lanzarone E., Yalçındağ S. (eds) Health Care Systems Engineering. HCSE 2019. Springer Proceedings in Mathematics & Statistics, vol 316. Springer, Cham.
2. **R. Cheng**.*Uncertain Spatial Data Management.* In the Encyclopedia of Database Systems, 2nd edition, L. Liu and T. Ozsu (eds.), Springer New York, pp. 1-6, 2017 (online). ISBN: 978-1-4899-7993-3. *(My contribution: 100%)*
3. **R. Cheng** and J. Chen.*Probabilistic Spatial Queries.* In the Encyclopedia of Database Systems, 2nd edition, L. Liu and T. Ozsu (eds.), Springer New York, pp. 1-6, 2017 (online). ISBN: 978-1-4899-7993-3. *(My contribution: 70%: I am the corresponding author, and I am responsible for writing 70% of the chapter.)*
4. S. Prabhakar and **R. Cheng**.*Indexing Uncertain Data.* In the Encyclopedia of Database Systems, 2nd edition, L. Liu and T. Ozsu (eds.), Springer New York, pp. 1-6, 2017 (online). ISBN: 978-1-4899-7993-3. *(My contribution: 50%: I am responsible for writing 50% of the chapter.)*
5. S. Prabhakar and **R. Cheng**. *Data Uncertainty Management in Sensor Networks.* In the Encyclopedia of Database Systems, 2nd edition, L. Liu and T. Ozsu (eds.), Springer New York, pp. 1-6, 2017 (online). ISBN: 978-1-4899-7993-3. *(My contribution: 50%: I am responsible for writing 50% of the chapter.)*
6. **R. Cheng.** *Spatial Data, Indexing Techniques.* In the Encyclopedia of Geographical Information Science, 2nd edition, S. Shekhar, H. Xiong, and X. Zhou (eds.), Springer, 2017, pp. 1992-2002. ISBN: 978-3-319-17884-4. *(My contribution: 100%.)*
7. **R. Cheng**, **Y. Fang**\*, and M. Renz. *Uncertain Data Classification.* In Data Classification: Algorithms and Applications, C. C. Aggarwal (eds.), Chapman & Hall / CRC Data Mining and Knowledge Discovery Series, May 2014, pp. 417-443. ISBN: 978-1466586741. *(My contribution: 60%: I am the corresponding author, and I am responsible for writing 60% of the chapter.)*
8. **R. Cheng**. *Managing Quality of Probabilistic Databases.* In the Handbook on Research and Practice in Data Quality, S. Sadiq (eds.), Springer, 2013, pp. 271-291. ISBN: 978-3-642-36256-9.
9. **R. Cheng** and **J. Chen\***.*Probabilistic Spatial Queries.* In the Encyclopedia of Database Systems, L. Liu and T. Ozsu (eds.), Springer-Verlag, pp. 2160-2165, Sep 2009, ISBN: 978-0-387-35544-3. *(My contribution: 60%: I am the corresponding author, and I am responsible for writing at least 60% of the chapter.)*
10. S. Prabhakar and **R. Cheng**.*Data Uncertainty Management in Sensor Networks.* In the Encyclopedia of Database Systems, L. Liu and T. Ozsu (eds.), Springer-Verlag, pp. 647-651, Sep 2009. ISBN: 978-0-387-35544-3 (peer-reviewed). *(My contribution: 50%: I am responsible for writing and editing the chapter.)*
11. **R. Cheng.** *Spatial Data, Indexing Techniques.* In the Encyclopedia of Geographical Information Science, S. Shekhar and H. Xiong (eds.), Springer, *pp. 1078-1086,* 2008. ISBN: 978-0-387-30858-6.
12. **R. Cheng**, E. Chan and K. Y. Lam.  *Quality Assurance of Probabilistic Queries*. InSensor Network and Configuration: Fundamentals, Techniques, Platforms, and Experiments, edited by N. Mahalik, Springer-Verlag, Germany, 2007, XX, 510 p., 205 illus., Hardcover. ISBN: 978-3-540-37364-3. *(My contribution: 50%: I am the corresponding author, and I am responsible for writing 50% of the chapter.)*
13. **R. Cheng** and S. Prabhakar.  *Sensors, Uncertainty Models, and Probabilistic Queries.* In Encyclopedia of Database Technologies and Applications, L. Rivero, J. Doorn and E. Ferraggine(ed.), Idea Group Publishing, *pp. 613-618,* 2005. *(My contribution: 70%: I am the corresponding author, and I am responsible for writing 50% of the chapter.)*
14. B. Kao and **R. Cheng**. *Disk Scheduling.* InReal-Time Database Systems: Architecture and Issues, edited by K. Y. Lam and T. W. Kuo, Kluwer Academic Publishers, *pp. 97-107*, Boston,  Dec 2001*. (My contribution: 50%: I am responsible for writing the first draft of the chapter, and surveying the literature.)*

**Knowledge Exchange Articles**

1. Mohamed F. Mokbel, Mahmoud Attia Sakr, Li Xiong, Andreas Züfle, Jussara M. Almeida, Taylor Anderson, Walid G. Aref, Gennady L. Andrienko, Natalia V. Andrienko, Yang Cao, Sanjay Chawla, **Reynold Cheng**, Panos K. Chrysanthis, Xiqi Fei, Gabriel Ghinita, Anita Graser, Dimitrios Gunopulos, Christian S. Jensen, Joon-Sook Kim, Kyoung-Sook Kim, Peer Kröger, John Krumm, Johannes Lauer, Amr Magdy, Mario A. Nascimento, Siva Ravada, Matthias Renz, Dimitris Sacharidis, Cyrus Shahabi, Flora D. Salim, Mohamed Sarwat, Maxime Schoemans, Bettina Speckmann, Egemen Tanin, Yannis Theodoridis, Kristian Torp, Goce Trajcevski, Marc J. van Kreveld, Carola Wenk, Martin Werner, Raymond Chi-Wing Wong, Song Wu, Jianqiu Xu, Moustafa Youssef, Demetris Zeinalipour, Mengxuan Zhang, Esteban Zimányi: Mobility Data Science (Dagstuhl Seminar 22021). Dagstuhl Reports 12(1): 1-34 (2022)
2. **R. Cheng**. Techno-Ageing. Cover story in the Bulletin, University of Hong Kong. May 2020.
3. **R. Cheng** and **Y. Zheng\*.** Crowdsourcing: Managing Crowd Wisdom in the Age of Big Data. Invited article for the Faculty of Engineering eNews. September 2015.
4. **R. Cheng**. Scalable Continuous Query Processing on Imprecise Location Data (移動位置資料庫的連續性查詢處理).  Research Frontiers, the Research Grants Council (RGC) of the University Grants Committee (UGC), Issue 23, Oct 2012. URL: http://www.ugc.edu.hk/rgc

**Software**

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**Tutorials**

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