Yuyu Luo

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Summary

Yuyu Luo is an Assistant Professor at the Data Science and Analytics Thrust, Information Hub, The Hong Kong University of Science and Technology (Guangzhou). He also holds an affiliated position at the Hong Kong University of Science and Technology, the Clear Water Bay campus at Hong Kong. He received my Ph.D. degree in Computer Science from **Tsinghua University** in 2023. His research falls in the emerging area of "Automatic Data Visualization" by building systems to simplify the visual data analytics pipeline, *i.e.,* helping people see and understand data more easily, effectively, and efficiently. He has published **20+ papers**, including **10 first-author and 3 corresponding-author papers**, in the prestigious database/visualization conferences and journals such as IEEE VIS, SIGMOD, TVCG, VLDB, ICDE, TKDE, and VLDB Journal. He is the recipient of the **Global Young Rising Star in Visualization by CSIG**, **Best of SIGMOD 2023 Papers**, **CIKM 2022 Best Demo Paper Honorable Mention**, **2020 Microsoft Research Asia Fellowship Nomination Award**, and **DASFAA 2019 Best Paper Award**.

Education

Tsinghua University	**Beijing, China**
PhD Student, Computer Science. GPA: 3.85/4.0. Advisor: Prof. Guoliang Li	*Sept. 2018 – Jun. 2023*
National University of Singapore	**Singapore**
Visiting Student, School of Computing. Advisor: Leong Hon Wai	*Jul. 2015 – Aug. 2015*
University of Electronic Science and Technology of China	**Chengdu, China**
B.E., Software Engineering. GPA: 3.88/4.0. Rank: 1/71	*Sept. 2014 – Jun. 2018*

Publications

My research interests lie simplifying the (visual) data analytics pipeline: (1) Automatic Data Visualization, and (2) Data Management for Efficient Data Analytics. I have published **20+ peer-reviewed papers** with **1000 citations**.

➡ **Topic-1: Automatic Data Visualization:**

1. **Learned Data-aware Image Representations of Line Charts for Similarity Search.**
   Yuyu Luo, *Yihui Zhou, Nan Tang, Guoliang Li, Chengliang Chai, Leixian Shen.*
   In Proceedings of the International Conference on Management of Data, **SIGMOD**, *2023* (Full Paper)

2. **Synthesizing Natural Language to Visualization (NL2VIS) Benchmarks from NL2SQL Benchmarks.**
   Yuyu Luo, *Nan Tang, Guoliang Li, Chengliang Chai, Wenbo Li, Xuedi Qin.*
   In Proceedings of the 2021 International Conference on Management of Data, **SIGMOD**, *2021* (Full Paper)

3. **DEEPEYE: Towards Automatic Data Visualization.** (**#-Citations: 206, ICDE 2018 Highly Cited Papers Top-2**)
   Yuyu Luo, *Xuedi Qin, Nan Tang, Guoliang Li.*
   In 2018 IEEE 34th International Conference on Data Engineering, **ICDE**, *2018* (Full Paper)

4. **Steerable Self-driving Data Visualization.**
   Yuyu Luo, *Xuedi Qin, Chengliang Chai, Nan Tang, Guoliang Li, Wenbo Li.*
   IEEE Transactions on Knowledge and Data Engineering, **IEEE TKDE**, *2022* (Full Paper)

5. **Natural Language to Visualization by Neural Machine Translation.** (**#-Citations: 60**)
   Yuyu Luo, *Nan Tang, Guoliang Li, Jiawei Tang,Chengliang Chai, Xuedi Qin.*
   IEEE Transactions on Visualization and Computer Graphics (Proceedings of **IEEE VIS** *2021).* (Full Paper)

6. **Interactive Cleaning for Progressive Visualization through Composite Questions.**
   Yuyu Luo, *Chengliang Chai, Xuedi Qin, Nan Tang, Guoliang Li.*
   In 2020 IEEE 36th International Conference on Data Engineering, **ICDE**, *2020* (Full Paper)

7. **VisClean: Interactive Cleaning for Progressive Visualization.**
   Yuyu Luo, *Chengliang Chai, Xuedi Qin, Nan Tang, Guoliang Li.*
   In Proceedings of the **VLDB** *Endowment 13, no. 12, 2020* (Demo)

8. **DEEPEYE: A Data Science System for Monitoring and Exploring COVID-19 Data.**
   Yuyu Luo, *Nan Tang, Guoliang Li.*
   IEEE Data Engineering Bulletin, 2020. (Full Paper)

9. **Sevi: Speech-to-Visualization through Neural Machine Translation.**
   Jiawei Tang, **Yuyu Luo***, *Mourad Ouzzani, Guoliang Li, Hongyang Chen.*
   In Proceedings of the 2022 International Conference on Management of Data, **SIGMOD**, *2022* (Demo)

10. **Empowering Natural Language to Visualization Neural Translation using Synthesized Benchmarks.**
    Yuyu Luo, *Jiawei Tang, Guoliang Li, Chengliang Chai.*
    IEEE VIS *2021* (Poster Paper)

11. **nvBench: A Large-Scale Synthesized Dataset for Cross-Domain Natural Language to Visualization Task.**
    Yuyu Luo, *Jiawei Tang, Guoliang Li.*
    IEEE VIS *2021, 'NL VIZ' Workshop.* (***Invited***)

12. **DeepTrack: Monitoring and Exploring Spatio-Temporal Data – A *Case of Tracking COVID-19 –*.**
    Yuyu Luo, *Wenbo Li, Tianyu Zhao, Xiang Yu, Lixi Zhang, Guoliang Li, Nan Tang.*
    In Proceedings of the ***VLDB*** *Endowment 13, no. 12, 2020* (Demo)

13. **GALVIS: Visualization Construction through Example-Powered Declarative Programming.**[*]
    Leixian Shen, Enya Shen, Zhiwei Tai, Yun Wang, **Yuyu Luo**, *Jianmin Wang.*
    Proceedings of the 31st ACM International Conference on Information & Knowledge Management, ***CIKM***, *2022* (Demo)
    [*] **Best Demo Paper Honorable Mention**

14. **Making Data Visualization More Efficient and Effective: A Survey. (#-Citations: 171)**
    Xuedi Qin, **Yuyu Luo**, *Nan Tang, Guoliang Li.*
    In ***The VLDB Journal***, *29, no. 1, 2020 : 93-117* (Survey)

15. **Towards Natural Language Interfaces for Data Visualization: A Survey. (#-Citations: 72)**
    Leixian Shen, Enya Shen, **Yuyu Luo**, *Xiaocong Yang, Xuming Hu, Xiongshuai Zhang, Zhiwei Tai, Jianmin Wang..*
    IEEE Transactions on Visualization and Computer Graphics, ***TVCG***, *2022 (Survey)*

16. **DEEPEYE: An Automatic Big Data Visualization Framework.** (**Excellent Paper Award**)
    Xuedi Qin, **Yuyu Luo**, *Nan Tang, Guoliang Li.*
    Big Data Mining and Analytics 2019.

17. **DEEPEYE: Creating Good Data Visualizations by Keyword Search.**
    Yuyu Luo, *Xuedi Qin, Nan Tang, Guoliang Li, Xinran Wang.*
    In Proceedings of the 2018 International Conference on Management of Data, ***SIGMOD***, *2018* (Demo)

➡ **Topic-2: Data Management for Efficient Data Analytics:**

18. **Data Management for Machine Learning: A Survey.**
    Chengliang Chai, Jiayi Wang, **Yuyu Luo**[*]*, Zeping Niu, Guoliang Li.*
    IEEE Transactions on Knowledge and Data Engineering, ***IEEE TKDE***, *2022* (Full Paper)

19. **RW-tree: A Learned Workload-aware Framework for R-tree Construction.**
    Haowen Dong, Chengliang Chai, **Yuyu Luo**, *Jiabin Liu, Jianhua Feng, Chaoqun Zhan.*
    In 2022 IEEE 38th International Conference on Data Engineering, ***ICDE***, *2022* (Full Paper)

20. **Feature Augmentation with Reinforcement Learning.**
    Jiabin Liu, Chengliang Chai, **Yuyu Luo**, *Jiabin Liu, Jianhua Feng, Lou Yin. Nan Tang*
    In 2022 IEEE 38th International Conference on Data Engineering, ***ICDE***, *2022* (Full Paper)

21. **Synthesizing Entity Resolution Datasets.**
    Xuedi Qin, Chengliang Chai, Nan Tang, Jian Li, **Yuyu Luo**, *Guoliang Li, Yaoyu Zhu.*
    In 2022 IEEE 38th International Conference on Data Engineering, ***ICDE***, *2022* (Full Paper)

22. **Interactively discovering and ranking desired tuples by data exploration.**
    Xuedi Qin, Chengliang Chai, **Yuyu Luo**, *Nan Tang, Guoliang Li.*
    In ***The VLDB Journal***, *2022* (Full Paper)

23. **Human-in-the-loop Outlier Detection.**
    Chengliang Chai, Cao Lei, Guoliang Li, Jian Li, **Yuyu Luo**, *Samuel Madden.*
    In Proceedings of the 2020 International Conference on Management of Data, ***SIGMOD***, *2020* (Full Paper)

24. **CrowdChart: Crowdsourced-based Data Extraction from Visualization Chart.**
    Chengliang Chai, Guoliang Li, Ju Fan, **Yuyu Luo**.
    IEEE Transactions on Knowledge and Data Engineering, ***IEEE TKDE***, *2020* (Full Paper)

25. **MathGraph: A Knowledge Graph for Automatically Solving Mathematical Exercises.** (**Best Student Paper Award**)
    Tianyu Zhao, Yan Huang, Songfan Yang, **Yuyu Luo**, *Jianhua Feng, Yong Wang, Haitao Yuan, Kang Pan, Kaiyu Li, Haoda Li.*
    In International conference on database systems for advanced applications, ***DASFAA***, *2019* (Full Paper)

Honors & Awards

- ○ *2023*, **Global Young Rising Star in Visualization by CSIG**
- ○ *2023*, **Best of SIGMOD 2023 Papers**
- ○ *2022*, CIKM 2022 Best Demo Paper Honorable Mention
- ○ *2021*, **Zhejiang Lab's International Talent Fund for Young Professionals** (PI, 30,000 RMB)
- ○ *2020*, **Tsinghua Top Grade Scholarship** (清华大学特等奖学金) , Tsinghua University.
  – The highest honor set for rewarding the most outstanding undergraduate and graduate students (**the BEST 10 Graduate Students at Tsinghua**).
- ○ *2020*, **Zhong Shimo Scholarship**, Tsinghua University.
  – The highest award in the Dept. of CST. Only 6 students, including undergraduate, master and PhD students, are awarded this year.
- ○ *2020*, **Microsoft Research Asia Fellowship Nomination Award** (15 students from Asia).
- ○ *2020*, National Scholarship, Ministry of Education of China.
- ○ *2019*, Huawei Scholarship.
- ○ *2019*, **DASFAA 2019 Best Student Paper Award**.
- ○ *2019*, **Excellent Paper Award** – Big Data Mining and Analytics.

Academic Service

PC Chairs: The 9th International Workshop on Big Data Quality Management, in conjunction with DASFAA 2024
PC Member: VLDB 2023, ICDE 2024, DBML 2023 (in conjunction with ICDE)
Reviewer: IEEE TODS, IEEE TVCG, IEEE VIS 2021-2023, EuroVIS 2021-2023 , IEEE Big Data'19.
External Reviewer: SIGMOD, VLDB, ICDE, KDD.
Conference Volunteer: SIGMOD 2021 Conference, Xi'an, Shaanxi, China.