Guozhong LI Ph.D.

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Research Interests

I am interested in Time Series Analysis, Scientific Data Compression, Transformer for Time Series, and Graph Representation. My current focuses include:

- LLM, diffusion-based, and graph representation for scientific data compression
- Learning graph structure for time series analysis.
- Learned index for time series similarity search.
- Efficient multimodal transformer for multimodal data analysis.
- Efficient transformer for (multivariate) time series analysis.
- Efficient and scalable shape-based (multivariate) time series analysis.

Professional Experience

King Abdullah University of Science and Technology Thuwal, Saudi Arabia
Post-doctoral Research Fellow *Sep 2023 – Present*

- Advisor: Prof. Panos Kalnis
- Error-bounded lossy compression methods for scientific data: A Survey
- Temporal graph autoencoders for error-bounded compression of scientific data
- GAN-based (Diffusion-based) error-bounded lossy compression methods for scientific data
- Decoder-only transformers for error-bounded scientific data compression
- Semantic-aware error-bounded scientific data compression

Université Paris Cité Paris, France
Visiting Post-doctoral Research Fellow *Mar 2023 – Aug 2023*

- Advisor: Prof. Themis Palpanas
- Proposed a novel learning graph structure method for time series analysis.
- Developed Series2Graph for TSB-UAD, an E2E benchmark suite for UTS anomaly detection

Hong Kong Baptist University Hong Kong SAR
Ph.D. Candidate *Sep 2017 – Aug 2021*
Senior Research Assistant / Post-doctoral Research Fellow *Sep 2020 – Sep 2023*

- Advisor: Prof. Byron Choi and Prof. Jianliang Xu
- Proposed novel and efficient algorithms for time series analysis.
- Designed novel network and loss function for (multivariate) time series.
- Proposed efficient transformer with data-driven attention mechanism for time series.
- Resulted to several research papers published in top-tier journals and conferences.

Education

Hong Kong Baptist University Hong Kong SAR
Ph.D. in Computer Science *Sep 2017 – Aug.2021*
Dissertation: Shapelet Discovery for Time Series Analysis
Advisor: Prof. Byron, Choi

University of Electronic Science and Technology of China Chengdu, China
Master of Engineering in Software Engineering *Sep 2014 – Jun 2017*
Dissertation: An approach for processing data skew problem in MapReduce model
Advisor: Prof. Wenhong Tian

University of Electronic Science and Technology of China Chengdu, China
Bachelor of Engineering in Software Engineering *Sep 2010 – Jun 2014*

Skills

Programming Python, Java, LaTeX, Bash, C/C++, SQL, Javascript, Matlab
Tools Emacs, Git, macOS, Linux
Languages Putonghua (Mandarin), English

Selected Publications

Complete List: Google Scholar [xr_cyAgAAAAJ&hl]

1. **G. Li**, B. Choi, R. Zuo, S. S. Bhowmick, and J. Xu, "Lesax index: A learned sax representation index for time series similarity search," in *The 41st IEEE International Conference on Data Engineering (**ICDE 2025**)*, May 2025, Full paper.
2. **G. Li**, M. Alhumaidi, S. Skiadopoulos, I. Hoteit, and P. Kalnis, "Graphcomp: Extreme error-bounded compression of scientific data via temporal graph autoencoders," 2025, Submitted.
3. R. Zuo, **G. Li**, R. Cao, B. Choi, J. Xu, and S. S. Bhowmick, "Darker: Efficient transformer with data-driven attention mechanism for time series," in *Proceedings of the VLDB Endowment (**PVLDB**)*, vol. 17, Aug. 2024, pp. 3229–3242, Full paper.
4. R. Zuo, **G. Li**, B. Choi, S. S. Bhowmick, N.-y. Mah, and G. Wong, "Svp-t: A shape-level variable-position transformer for multivariate time series classification," in *The 37th AAAI Conference on Artificial Intelligence (**AAAI 2023**)*, vol. 37, Feb. 2023, pp. 11 497–11 505, Full paper.
5. L. Yan, N. Xu, **G. Li**, S. S. Bhowmick, B. Choi, and J. Xu, "Sensor: Data-driven construction of sketch-based visual query interfaces for time series data," in *Proceedings of the VLDB Endowment(**PVLDB**)*, vol. 15, Sep. 2022, pp. 3650–3653, Demo paper.
6. **G. Li**, B. Choi, J. Xu, S. S. Bhowmick, N.-y. Mah, and G. Wong, "Ips: Instance profile for shapelet discovery for time series classification," in *The 38th IEEE International Conference on Data Engineering (**ICDE 2022**)*, May 2022, pp. 1781–1793, Full paper.
7. **G. Li**, B. Choi, j. Xu, S. S. Bhowmick, K. P. Chun, and G. Wong, "Efficient shapelet discovery for time series classification," *IEEE Transactions on Knowledge and Data Engineering (**TKDE**)*, vol. 34, no. 3, pp. 1149–1163, 2022, Full paper.
8. **G. Li**, B. Choi, J. Xu, S. S. Bhowmick, K. P. Chun, and G. Wong, "Efficient shapelet discovery for time series classification (extended abstract)," in *The 37th IEEE International Conference on Data Engineering (**ICDE 2021**)*, Apr. 2021, pp. 2336–2337, Poster paper.
9. **G. Li**, B. Choi, j. Xu, S. S. Bhowmick, K. P. Chun, and G. Wong, "Shapenet: A shapelet-neural network approach for multivariate time series classification," in *The 35th AAAI Conference on Artificial Intelligence (**AAAI 2021**)*, vol. 35, Feb. 2021, pp. 8375–8383, Full paper.
10. **G. Li**, B. Choi, S. S. Bhowmick, K. P. Chun, G. Wong, and S. Li, "Visualet: Visualizing shapelets for time series classification," in *29th ACM International Conference on information and knowledge management (**CIKM 2020**)*, Oct. 2020, pp. 3429–3432, Demo paper.

Teaching Assistant

- 2019 Fall: COMP7270 Web and Mobile Programming, COMP, HKBU
- 2019 Spring: COMP4027/COMP7650 Data Mining and Knowledge Discovery, COMP, HKBU
- 2018 Fall: COMP7480 Programming for Web and Mobile Information Systems, COMP, HKBU
- 2018 Fall: COMP4097 Mobile Computing, COMP, HKBU
- 2018 Spring: COMP7470 Health Information Privacy, COMP, HKBU
- 2017 Fall: COMP2026 Problem Solving Using Object Oriented Programming, COMP, HKBU

Services

- On behalf of DBworld Moderators *Nov 2021 – Present*
- Journal Reviewer: IEEE TKDE, IEEE TPAMI, IEEE TCYB, IEEE TIV
- Conference Program Session Chair: CIKM2020
- Conference PC Member: PVLDB Demo2025, AAAI2025-2023, IJCAI 2025-2024, ACML2025, PAKDD2025-2023
- Conference Program External Reviewer: ICDE2025-2024, SIGMOD2024, AAAI2022, ICDE2022, PAKDD2022-2020, ICDM2021, CIKM2021, PVLDB2020, SIGKDD2019, WAIM2019, BigComp2019, ER2018, BigData2018

Awards

- Research Performance Award, Hong Kong Baptist University *2020, 2021*
- Excellent Teaching Assistant Performance Award, Hong Kong Baptist University *2018, 2019*
- Teaching Assistant Performance Award, Hong Kong Baptist University *2017, 2018, 2019*
- IBM-CSC Scholarship, IBM & Chinese Scholarship Council *2015*
- National Scholarship, Ministry of Education, P.R.China *2011, 2012, 2013,2016*