

Boyan LI

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Education

Hong Kong University of Science and Technology (Guangzhou)

Guangzhou, China

Ph.D. Student in Data Science and Analytics (DSA)

Sep. 2024 – Present

Supervisor: **Prof. Yuyu LUO**

Southern University of Science and Technology (SUSTech)

Shenzhen, China

B.Eng. in Computer Science and Technology

Sep. 2019 – Jul. 2023

GPA: 3.91/4.0 (Rank 2/183) | Honors: Outstanding Graduate, Highest Honors

Publications

* indicates equal contribution. **Boyan Li** is bolded.

First-Author Publications (Including Co-First)

- [1] **Alpha-SQL: Zero-Shot Text-to-SQL using Monte Carlo Tree Search**
Boyan Li, J. Zhang, J. Fan, Y. Xu, C. Chen, N. Tang, Y. Luo
International Conference on Machine Learning (ICML), 2025 (CCF-A)
Deployed in **Huawei Cloud DataArts Insight** and **Wuhan Urban Operation Agent**.
- [2] **DeepEye-SQL: A Software-Engineering-Inspired Text-to-SQL Framework**
Boyan Li, C. Chen, Z. Xue, Y. Mei, Y. Luo
ACM SIGMOD International Conference on Management of Data (SIGMOD), 2025 (CCF-A, Under Review)
- [3] **The Dawn of Natural Language to SQL: Are We Fully Ready?**
Boyan Li, Y. Luo, C. Chai, G. Li, N. Tang
Proceedings of the VLDB Endowment (VLDB), 2024 (CCF-A)
- [4] **DeepVIS: Bridging Natural Language and Data Visualization Through Step-wise Reasoning**
Z. Shuai*, **Boyan Li***, S. Yan, Y. Luo, W. Yang
IEEE VIS Conference (VIS), 2025 (CCF-A)
- [5] **ROSE: An Intent-Centered Evaluation Metric for NL2SQL**
W. Pei*, S. Hou*, **Boyan Li***, H. Chen, Z. Shi, Y. Luo
Annual Meeting of the Association for Computational Linguistics (ACL), 2025 (CCF-A, Under Review)

Co-authored Publications

- [6] **A Survey of NL2SQL with Large Language Models: Where are we, and where are we going?**
X. Liu, S. Shen, **Boyan Li**, P. Ma, R. Jiang, Y. Zhang, J. Fan, G. Li, N. Tang, Y. Luo
IEEE Transactions on Knowledge and Data Engineering (TKDE), 2025 (CCF-A)
- [7] **nvBench 2.0: A Benchmark for Natural Language to Visualization under Ambiguity**
T. Luo, C. Huang, L. Shen, **Boyan Li**, S. Shen, W. Zeng, N. Tang, Y. Luo
Conference on Neural Information Processing Systems (NeurIPS), 2025 (CCF-A)
- [8] **NL2SQL-BUGS: A Benchmark for Detecting Semantic Errors in NL2SQL Translation**
X. Liu, S. Shen, **Boyan Li**, N. Tang, Y. Luo
ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 2025 (CCF-A)
- [9] **Augmenting Realistic Charts with Virtual Overlays**
Y. Shi, **Boyan Li**, Y. Luo, L. Chen, N. Tang
CHI Conference on Human Factors in Computing Systems (CHI), 2025 (CCF-A)
- [10] **EllieSQL: Cost-Efficient Text-to-SQL with Complexity-Aware Routing**
Y. Zhu, R. Jiang, **Boyan Li**, N. Tang, Y. Luo
Conference on Language Modeling (COLM), 2025
- [11] **A Survey of Data Agents: Emerging Paradigm or Overstated Hype?**
Y. Zhu, ..., **Boyan Li**, et al.
IEEE Transactions on Knowledge and Data Engineering (TKDE), 2025 (Under Review)
- [12] **Advances and Challenges in Foundation Agents**
B. Liu, ..., **Boyan Li**, et al.
arXiv preprint, 2025
Ranked Top-1 in Hugging Face Daily Papers.
- [13] **Are Large Language Models Good Statisticians?**
Y. Zhu, S. Du, **Boyan Li**, Y. Luo, N. Tang
Conference on Neural Information Processing Systems (NeurIPS), 2024 (CCF-A)
- [14] **A Plug-and-Play Natural Language Rewriter for Natural Language to SQL**
P. Ma, **Boyan Li**, R. Jiang, J. Fan, N. Tang, Y. Luo
arXiv preprint, 2024

Open Source & Systems

- **DeepEye: Visual Workflow Data Agent System**

- Led the development of a low-code orchestration platform for transparent data analysis.
- **Award:** “Best Open-source Project Award” at AI Agent 2025 Competition.

- **Alpha-SQL** (ICML 2025)

[\[GitHub\]](#)

- Official implementation of the Monte Carlo Tree Search based Text-to-SQL agent.
- **Impact:** Deployed in **Huawei Cloud DataArts Insight** and **Wuhan Urban Operation Agent**.

- **NL2SQL Handbook** (TKDE 2025)

[\[GitHub\]](#)

- A comprehensive and continuously updated roadmap for NL2SQL researchers.
- Widely recognized as a seminal resource for tracking state-of-the-art advancements.

- **NL2SQL360 Evaluation Framework** (VLDB 2024)

[\[GitHub\]](#)

- A comprehensive testbed for fine-grained evaluation of NL2SQL solutions.

Experience

Tsinghua University (Database Group)

Beijing, China

Exchange Student (Mentor: Prof. Guoliang Li)

Jun. 2025 – Present

Huawei Central Research Institute

Shenzhen, China

Research Intern

Jul. 2022 – Sep. 2022

Honors & Awards

Best Open-source Project Award, AI Agent 2025 Competition

Oct. 2025

Merit Prize, DSA Excellent Research Award 2024

Jan. 2025

DSAA 5021 Best Project Award, HKUST(GZ)

Dec. 2024

Highest Honors in Computer Science & Engineering, SUSTech

Jun. 2023

Outstanding Graduate, SUSTech

Jun. 2023

Huawei Scholarship, Huawei Technologies

May. 2022

Excellent Student Scholarship, SUSTech

2020, 2021, 2022

National Encouragement Scholarship, Ministry of Education of China

Apr. 2020

Services

Conference Reviewer: ICLR 2026