

Lingze Zeng

lingze@comp.nus.edu.sg | lingze.zone | github.com/zrealshadow | linkedin.com/in/lingzezeng | (+65)88426606

Education

National University of Singapore (NUS)

Ph.D. in Computer Science, School of Computing

Aug. 2023 – Present

Advisor: Prof. Ooi Beng Chin

Beijing Institute of Technology (BIT)

B.Sc. in Software Engineering, School of Computer Science and Technology

Sep. 2016 – Sep. 2020

Advisor: Prof. Zhang Meihui

Experience

National University of Singapore (NUS)

Research Assistant

Mar. 2022 – Aug. 2023

Mentor: Prof. Ooi Beng Chin

Institute of Computing Innovation, Zhejiang University (ZJU)

Research Assistant

Sep. 2020 – Sep. 2021

Mentor: Dr. Zhongle Xie

Projects

NeurDB: AI-native autonomous database system.

May 2024 – Present

- Designed and developed NeurIDA, a dynamic modeling framework automating end-to-end pipeline from natural language queries to in-database analytics, covering agent-based task planning, data selection, and model construction.
- Integrated model slicing algorithm into AI engine, supporting SQL-driven model customization for data analytics.
- Led development of NeurDB's AI Engine, an external service supporting LLM inference and ML lifecycle management.

IP8Value: Advanced IP Management System.

Jan. 2023 – Present

- Co-founded company, leading overall technical architecture and engineering team.
- Led development of platform backend, covering core business logic, data management, and access control.
- Built algorithm service backend delivering AI-powered features including semantic IP search, patent classification, and automated patent generation.

COOL: Cohort Online Processing System.

Mar. 2022 – Aug. 2023

- Developed cohort query engine with multi-way Point-in-Time JOIN support, reducing query latency by up to **17×** compared to MonetDB.
- Built data ingestion pipeline and cublet-based storage layout with compression schemes (delta encoding, RLE, bit packing), delivering **~3× compression ratio** and reducing memory footprint by up to **8.6×** compared to MonetDB.
- Built cohort-aware representation learning algorithm for medical analytics, enabling patient cohort analysis and outcome prediction.

Ark-NLP: Python open-source library for SOTA solutions in NLP.

Sep. 2020 – Sep. 2021

- Designed and implemented NER modules (CRF-BERT, Global Pointer) and medical synonym discovery pipeline for Chinese clinical terms, extending library's coverage of biomedical NLP tasks.
- Applied library to achieve **Rank 1st** in CHIP 2021 Competition Task 1 (Chinese medical NLP), demonstrating effectiveness of implemented models.

Publications

- NeurIDA: Dynamic Modeling for Effective In-Database Analytics VLDB, 2026
L. Zeng, N. Xing, S. Cai, P. Lu, G. Chen, J. Pei, B. C. Ooi.
- pTNAS: Progressive Neural Architecture Search for Tabular Data ICML, 2026
N. Xing, S. Cai, L. Zeng, J. Zhu, P. Lu, J. Pei, B. C. Ooi.
- NRBench: A Benchmark Suite for Learned Database Components with Drift Modeling SIGMOD, 2026
Z. Zhao, H. Gao, N. Xing, L. Zeng, M. Zhang, G. Chen, M. Rigger, B. C. Ooi.
- From Schema to Signal: Retrieval-Augmented Modeling for Relational Data Analytics ArXiv, 2025
L. Zeng, S. Cai, C. Liu, Z. Xie, Y. Wu, B. C. Ooi.
- NeuralCohort: Cohort-aware Neural Representation Learning for Healthcare Analytics ICML, 2025
C. Liu, L. Zeng, K. Zheng, S. Cai, B. C. Ooi, J. W. L. Yip.
- Powering In-database Dynamic Model Slicing for Structured Data Analytics VLDB, 2025
L. Zeng, N. Xing, S. Cai, G. Chen, B. C. Ooi, J. Pei, Y. Wu.
- NeurDB: An AI-powered Autonomous Data System Science China, 2024
B. C. Ooi, S. Cai, G. Chen, K. L. Tan, Y. Wu, X. Xiao, N. Xing, C. Yue, L. Zeng, M. Zhang, Z. Zhao.
- Multi-label Classification with Long-tailed Distribution and Partial Labels ICCV, 2023
W. Zhang, C. Liu, L. Zeng, B. C. Ooi, S. Tang, Y. Wu.
- A Two-phase Approach for Recognizing Tables with Complex Structures DASFAA, 2022
H. Li, L. Zeng, W. Zhang, J. Zhang, J. Fan, M. Zhang.
- Chinese Synonym Discovery on Privacy-constrained Medical Terms with Pre-trained BERT APWeb, 2022
L. Zeng, C. Yao, M. Zhang, Z. Xie.

Teaching

Teaching Assistant, National University of Singapore (NUS)

- CP2107 Summer Project — *In-Database Feature Store for Lightweight Analytical Databases* 2025 – 2026
- CP2107 Summer Project — *Tabular Foundation Model for Data Analytics* 2025 – 2026
- CS4221 Database Application and Tuning 2024 – 2025
- CS5344 Big-Data Analytics Technology 2023 – 2024

Awards

- SIGMOD Systems Award – *Apache Singa* 2024
- Research Achievement Award – *National University of Singapore* 2023
- First-class Scholarship – *Beijing Institute of Technology* 2017, 2019
- JJWorld Scholarship – *Beijing Institute of Technology* 2018

Research Interests

- Unified analytics over structured and relational data.
- AIxDB systems; In-database analytics.
- Application and extension of tabular foundation model.

Skills

- **Language Proficiency:** English, Mandarin
- **Programming Skills:** Python, Golang, C/C++, Java, Rust, SQL, NoSQL, JavaScript, HTML