Ling Zhang – Curriculum Vitae

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Education

2021 - now Ph.D., Computer Sciences - University of Wisconsin-Madison, Minor in Statistics.
Advisor: Prof. Jignesh Patel, Prof. Karu Sankaralingam
Key Courses: Big Data Systems, Machine Learning, Advanced Algorithms

2019-2020 Master of Science, Computer Science - Carnegie Mellon University
Key Courses: Advanced Database Systems, Distributed Systems, Performance Modeling

2015-2019 Bachelor of Science with Highest Distinction, Computer Science - Purdue University
Minor in Mathematics
Key Courses: Compilers, Database Systems, Software Engineering, Cryptography

Publication

2026 Ling Zhang, Shaleen Deep, Jignesh M. Patel, Karthikeyan Sankaralingam:

Work on Pattern-Based Indexing for System Logs. (Under revision, title anonymized) SIGMOD 2026

Ling Zhang, Shaleen Deep, Jignesh M. Patel, Karthikeyan Sankaralingam:

An Evaluation of N-Gram Selection Strategies for Regular Expression Indexing in Contemporary Text Analysis Tasks. (To Appear) VLDB 2026

2025 Ling Zhang, Shaleen Deep, Joyce Cahoon, Anja Gruenheid, Jignesh M. Patel:

From Feature Selection to Resource Prediction: An Analysis of Commonly Applied Workflows and Techniques. EDBT 2025

2023 Ling Zhang, Shaleen Deep, Avrilia Floratou, Anja Gruenheid, Jignesh M. Patel, Yiwen Zhu:

Exploiting Structure in Regular Expression Queries.

Proc. ACM Manag. Data 1(2): 152:1-152:28 (SIGMOD 2023)

2021 Ling Zhang, Matthew Butrovich, Tianyu Li, Andrew Pavlo, Yash Nannapaneni, John Rollinson, Huanchen Zhang, Ambarish Balakumar, Daniel Biales, Ziqi Dong, Emmanuel J. Eppinger, Jordi E. Gonzalez,Wan Shen Lim, Jianqiao Liu, Lin Ma, Prashanth Menon, Soumil Mukherjee, Tanuj Nayak, Amadou Ngom, Dong Niu, Deepayan Patra, Poojita Raj, Stephanie Wang, Wuwen Wang, Yao Yu, William Zhang:

Everything is a Transaction: Unifying Logical Concurrency Control and Physical Data Structure. CIDR 2021

Experience

Sept 2021 - now University of Wisconsin-Madison
Research Assistant

- Designed a framework for indexing regular expression with low index construction overhead and 4× regex matching performance than SOTA.
- Implemented and benchmarked existing regular expression index key selection methods on diversified real-world and synthetic workload.
- Implemented a general regular expression matching framework on top of existing state-of-art libraries and speed up 3 real-world workloads by 1.6× to 168×.

May 2025 - Aug 2025 eBay
Software Engineer Intern

- Developed an ML-driven index recommendations pipeline to optimize ClickHouse workloads.
- Designed a modular pipeline with feature engineering and query latency aware cost-reward modeling based on query logs.
- Adapted the index recommendation tool to suggest Puffin secondary index for ClickHouse-Iceberg lakehouse (Experimental).

May 2022 - Aug 2022 Microsoft Gray Systems Lab
Research Intern

- Analyzed cloud workload performance scaling on SQL-Server on different hardware settings.
- Applied methods like linear mixed effects model and multivariate adaptive regression splines to predict benchmark performance.
- Experimentally compared methods in workload scaling prediction end-to-end pipeline.

Mar 2021 - Jul 2021 Splice Machine
Software Engineer Intern

- Refined log generation code to record firing triggers, handling nested trigger execution.
- Parsed performance metrics, designed database schema of metrics and experiment settings.

May 2019 - Dec 2020 Database Group, Carnegie Mellon University
Research Assistant

- Implemented deferred action framework in a DBMS to schedule internal maintenance tasks.
- Refactored logical and physical operators in CMU's experimental self-driving DBMS, NoisePage.
- Integrated and improved data binding and statement-to-operator transformation components in NoisePage to annotate and translate query ASTs to logical operators.
- Implemented non-blocking add/drop columns and alter default values with snapshot isolation.

Teaching Experience

Aug 2020 - Dec 2020 Carnegie Mellon University
Graduate Teaching Assistant

- Led recitations and office hours to assist students in their learning process.
- Prepared exam and assignment questions based on the course materials.

Honors and Awards

2019 Computer Research Association
Honorable Mention in Outstanding Research Award

Aug 2016 - May 2017 Purdue University
Jandos Scholarship for outstanding students in Women in Science Programs