

# Ling Zhang – Curriculum Vitae

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## Education

- 2021 - now** Ph.D., Computer Sciences - University of Wisconsin-Madison  
**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

## Experience

- Sept 2021 - now** University of Wisconsin-Madison  
*Research Assistant*
- Designed a framework for indexing regular expression with low index construction overhead and high regex matching performance.
  - 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  $1.6\times$  to  $168\times$ .
- 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 index recommendation tool to suggest Puffin secondary index for Iceberg lakehouse.
- May 2022 - Aug 2022** Microsoft Gray Systems Lab  
*Research Intern*
- Analyzed cloud workload performance scaling on SQL-Server on different hardware settings.
  - 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 -** Database Group, Carnegie Mellon University  
**Dec 2020** *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.

## Publication

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

**Work on Pattern-Based Indexing for System Logs.** (To appear)  
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, Avriela 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

## Teaching & Leadership Experience

**Aug 2020 -** Carnegie Mellon University  
**Dec 2020** *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 -** Purdue University  
**May 2017** *Jandos Scholarship for outstanding students in Women in Science Programs*