JIWON CHANG

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RESEARCH INTEREST

My current research is building **relational databases with AI queries**, also known as **semantic operators**, with a focus on ranking and randomized algorithms. My existing work spans query optimization for SQL+ML queries, data integration, and interpretable tabular learning.

PUBLICATIONS

What Data Difficulty Metrics Should We Measure for Tabular Deep Learning?. J. Chang, F. Nargesian. 2025. *Preprint.*

Approximating Opaque Top-k Queries. J. Chang, F. Nargesian. *SIGMOD 2025.* [link]

CoolerSpace: A Language for Physically Correct and Computationally Efficient Color Programming. E. Chen, J. Chang, Y. Zhu. *OOPSLA 2024.* [link]

PLUTUS: Understanding Distribution Tailoring for Machine Learning. J. Chang, C. Dionysio, F. Nargesian, M. Boehm. *SIGMOD Companion 2024.* [link]

Data Distribution Tailoring Revisited: Cost-Efficient Integration of Representative Data. J. Chang, B. Cui, F. Nargesian, A. Asudeh, H. V. Jagadish. *VLDBJ 2024.* [link]

EDUCATION

University of Rochester — 2023–Present

Ph.D. in Computer Science — Rochester, NY

- Advisor: Fatemeh Nargesian
- Concurrent M.S. in Computer Science
- GPA: 3.96 / 4.0
- Coursework: Database Systems, Machine Learning Systems, Compilers, Machine Learning, Optimization Theory, Sampling Algorithms
- Teaching: Database Applications, Artificial Intelligence, Undergraduate Research Seminar

University of Rochester — 2018–2023

B.S. in Computer Science — Rochester, NY

- GPA: 3.38 / 4.0
- Dean's List (2x)
- Coursework: Data Management, Data Mining, Artificial Intelligence, Advanced Algorithms, Linear Algebra, Research Seminar

PROFESSIONAL EXPERIENCE

BusySquirrels Company — 2021

Full-Stack Web Developer Intern — Remote

- Improved browser extension UI with React.js.
- Optimized IndexedDB queries to halve discount code lookup latency.
- Integrated product analytics pipelines using AWS and Google Analytics.

Freelance — 2018–2022

Private Physics Tutor — Remote

- Taught IB Higher Level Physics curriculum to international high school students.

GRANTS & AWARDS

- **Schwartz Discover Grant for Undergraduate Summer Research.** 2022. Project: *Data Distribution Tailoring Revisited.*

PRESENTATIONS

- Talk: **Optimizing Semantic Top-k Operators with Listwise Prompting.** NEDB, 2026.
- Talk: **Approximating Opaque Top-k Queries.** SIGMOD, 2025.
- Poster: **Approximating Opaque Top-k Queries.** UR Graduate Research Symposium, 2024.
- Poster: **PLUTUS: Understanding Distribution Tailoring for ML.** SIGMOD Demo, 2024.

PROFESSIONAL AFFILIATIONS

- Association for Computing Machinery (ACM)
- SIGMOD (Special Interest Group in Management of Data)
- Sigma Xi, University of Rochester Chapter

TECHNICAL SKILLS

- **Programming Languages:** Python, SQL, Go, Java, Rust, C++
- **Databases & Data Systems:** PostgreSQL, Delta Lake, Snowflake, MongoDB
- **Machine Learning & Data Science:** PyTorch, Pandas, Dask, PyTorch Tabular, Dash
- **DevOps & Tools:** Git/GitHub, Linux, Weights & Biases