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## Research Interests

E-graphs and Equality Saturation. Query Optimization. Program Optimization and Synthesis. Datalog.

## Education Background

**Ph.D.**, University of Washington

Sept 2022-Current

- Ph.D. in Computer Science.
- Co-advised by Zachary Tatlock and Dan Suciu.

**Master**, University of Washington

Sept 2021-June 2022

- M.S. in Computer Science.
- Thesis: *Towards a Relational E-graph*, advised by Zachary Tatlock.

**Bachelor**, University of Washington

Sept 2018-June 2021

- B.S. with Departmental Honors in Computer Science, *Magna Cum Laude*. GPA 3.90/4.00.
- Thesis: *Faster and Worst-Case Optimal E-Matching*, advised by Zachary Tatlock.

## Conference papers

- Dan Suciu, Remy Wang, **Yihong Zhang**. *Semantic Foundations of Equality Saturation*. International Conference on Database Theory (ICDT) 2025.
- Xiang Li, Xiangyu Zhou, Rui Dong, **Yihong Zhang**, Xinyu Wang. *Efficient Bottom-Up Synthesis for Programs with Local Variables*. Principles of Programming Languages (POPL) 2024. **Selected for MIT PL Review 2024**.
- **Yihong Zhang**, Remy Wang, Oliver Flatt, David Cao, Philip Zucker, Eli Rosenthal, Zachary Tatlock, Max Willsey. *Better Together: Unifying Datalog and Equality Saturation*. Programming Language Design and Implementation (PLDI) 2023. **Selected for MIT PL Review 2024**.
- **Yihong Zhang**, Remy Wang, Max Willsey, Zachary Tatlock. *Relational E-matching*. Principles of Programming Languages (POPL) 2022.
- Maximilian Schleich, Zixuan Geng, **Yihong Zhang**, and Dan Suciu. *GeCo: Quality Counterfactual Explanations in Real Time*. Proceedings of the VLDB Endowment (PVLDB).

## Workshop papers

- **Yihong Zhang**, Dan Suciu, Remy Wang, Max Willsey. *Database Theory in Action: Search-based Program Optimization*. ICDT Database Theory + X Track 2025.
- **Yihong Zhang**, Oliver Flatt. *Ensuring the Termination of Equality Saturation for Terminating Term Rewriting Systems*. E-Graph Research, Applications, Practices, and Human-factors Symposium (EGRAPHS) 2023.
- Oliver Flatt, **Yihong Zhang**. *egglog In Practice: Automatically Improving Floating-point Error*. E-Graph Research, Applications, Practices, and Human-factors Symposium (EGRAPHS) 2023.
- **Yihong Zhang**. *Chasing an Egg*. E-Graph Research, Applications, Practices, and Human-factors Symposium (EGRAPHS) 2022.
- **Yihong Zhang**. *Faster and Worst-Case Optimal E-matching via Reduction to Conjunctive Queries*. Programming Language Design and Implementation (PLDI) 2021 Student Research Competition. **Awarded first place at PLDI SRC and second place in the SRC Grand Finals**.

## Manuscripts

- Glenn Sun, **Yihong Zhang**, Haobin Ni. *E-Graphs as Circuits, and Optimal Extraction via Treewidth*.

## Employment

**Research Assistant**, University of Washington, advised by Z. Tatlock and D. Suciú [Sept 2021–Current](#)  
**Research Scientist Intern**, Adobe, hosted by Andrew Adams and Maaz Ahmad [June 2025–Sept 2025](#)  
**Research Scientist Intern**, Adobe, hosted by Maaz Ahmad [June 2024–Sept 2024](#)  
**Research Intern**, RelationalAI, hosted by Martin Bravenboer [April 2022–June 2022](#)  
**Research Intern**, HKUST, hosted by Lionel Parreaux [June 2021–Sept 2021](#)  
**Software Engineer Intern**, Oracle [June 2020–Sept 2020](#)

## Recognition

**Second Place**, ACM Student Research Competition Grand Finals [June 2022](#)  
**First Place**, PLDI Student Research Competition [June 2021](#)  
**First Place**, International Collegiate Programming Contest (ICPC), UW Qualifier [Oct 2019](#)  
**Fifth Place**, International Collegiate Programming Contest (ICPC), Pacific Northwest Region [Nov 2018](#)  
**Dean's List**, University of Washington [Dec 2018–June 2021](#)

## Teaching

**Teaching Assistant**, CSE 505: Principles of Programming Languages (Graduate) [Spring 2021](#)  
**Teaching Assistant**, CSE 374: Intermediate Programming Concepts and Tools [Winter 2021](#)  
**Teaching Assistant**, CSE 341: Programming Languages [Autumn 2020](#)

## Mentorship

**Kirsten Graham**, then Jane Street [Sept 2023–Dec 2024](#)  
**Alex Fischman**, then Jane Street [Sept 2023–June 2025](#)  
**Ryan Tjoa**, then Jane Street [Jan 2023–June 2024](#)  
**Zhiyuan Yan**, then UC San Diego [Jan 2023–June 2024](#)

## Services

**Ph.D. Application Reader**, University of Washington [2023, 2024](#)  
**Mentor**, Pre-Application Mentoring Service (PAMS), University of Washington [2024, 2025](#)  
**Subreviewer**, POPL 2024, FOCS 2024 [2024](#)  
**Reviewer**, SIGMOD 2025 Availability & Reproducibility Initiative [2025](#)