Ziteng Wang

https://ziteng.wang/

October 30, 2026

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Education

- **University of Texas at Austin** — Austin, TX
  Ph.D. Computer Science; Advisors: Işıl Dillig, Dixin Tang — *2021 – Apr 2027 (expected)*
- **University of Texas at Austin** — Austin, TX
  M.S. Computer Science — *awarded 2025*
- **University of California San Diego** — La Jolla, CA
  B.S. Computer Science (GPA: 3.9/4.0); B.S. Mathematics — *2017 – 2021*

Research Summary

Programming languages and formal methods for deriving efficient, **provably correct** implementations from high-level specifications, with applications to **data systems and AI infrastructure**. My work handles computations ranging from streaming aggregations to ML kernels, with guarantees that neither human experts nor LLMs alone can provide.

Professional Experience

- **Amazon Web Services, Neuron Automated Reasoning Group** — Seattle, WA
  Applied Scientist Intern — *May – Aug 2026*
  Developed a superoptimizer that synthesizes verified, high-performance AWS Trainium kernels. Matched or beat AWS's hand-tuned kernel library on most LLM workloads, running up to 3× faster. One discovered optimization shipped in AWS's production kernel library, delivering a 1.12× speedup.
- **RelationalAI** — Berkeley, CA
  Research Intern — *Jun – Sep 2022*
  Designed and implemented a prototype visualization library for RelationalAI's *Rel* programming language, enabling users to construct visual representations of relational data and query results directly from Rel programs.

Skills

- **Languages**: Python, OCaml, Rust, Haskell, C#, C/C++, TypeScript/JavaScript
- **FM/Verification**: Z3/CVC5 (via SMT-LIB), Coq, Dafny, ACL2, Ivy
- **Systems/Tools**: Linux, Nix/NixOS, Kubernetes, Docker, Git, Pandas/NumPy

Publications

† Denotes equal contribution to this work. My name is underlined.

- **Axon: Semantics-Guided Tensor Superoptimization for Trainium**
  Akash Kothari†, Ziteng Wang†, Daniel Kroening, Shaowei Zhu, Chungha Sung
  In submission to MLSys 2027 (Conference on Machine Learning and Systems)
- **Rewinding the Fold: Making Stateful Computations Retractable**
  Ziteng Wang, Linus Zheng, Dixin Tang, Işıl Dillig
  Accepted to POPL 2027 (Proceedings of the ACM on Programming Languages)
- **Solving Partially Observable Safety Games via Symbolic Memory Abstractions**
  Jia Pan, Ziteng Wang, Venkat Arun, Kenneth McMillan, Işıl Dillig
  Accepted to POPL 2027 (Proceedings of the ACM on Programming Languages)

- **Homomorphism Calculus for User-Defined Aggregations**
  Ziteng Wang, Ruijie Fang, Linus Zheng, Dixin Tang, Işıl Dillig
  OOPSLA 2025 (Proceedings of the ACM on Programming Languages) [Paper] [Artifact]

- **CRUST-Bench: A Comprehensive Benchmark for C-to-safe-Rust Transpilation**
  Anirudh Khatry, Robert Zhang, Jia Pan, Ziteng Wang, Qiaochu Chen, Greg Durrett, Işıl Dillig
  COLM 2025, **Spotlight** (Conference on Language Modeling) [Paper] [Artifact]

- **Control-Flow Deobfuscation using Trace-Informed Compositional Program Synthesis**
  Benjamin Mariano†, Ziteng Wang†, Shankara Pailoor, Christian Collberg, Işıl Dillig
  OOPSLA 2024 (Proceedings of the ACM on Programming Languages) [Paper] [Artifact]

- **Relational Synthesis of Recursive Programs via Constraint Annotated Tree Automata**
  Anders Miltner, Ziteng Wang, Swarat Chaudhuri, Işıl Dillig
  CAV 2024 (International Conference on Computer Aided Verification) [Paper]

- **From Batch to Stream: Automatic Generation of Online Algorithms**
  Ziteng Wang, Shankara Pailoor, Aaryan Prakash, Yuepeng Wang, Işıl Dillig
  PLDI 2024 (Proceedings of the ACM on Programming Languages) [Paper] [Artifact]

- **Digging for Fold: Synthesis-Aided API Discovery for Haskell**
  Michael B. James, Zheng Guo, Ziteng Wang, Shivani Doshi, Hila Peleg, Ranjit Jhala, Nadia Polikarpova
  OOPSLA 2020 (Proceedings of the ACM on Programming Languages) [Paper] [Artifact]

- **Program Synthesis by Type-Guided Abstraction Refinement**
  Zheng Guo, Michael B. James, David Justo, Jiaxiao Zhou, Ziteng Wang, Ranjit Jhala, Nadia Polikarpova
  POPL 2020 (Proceedings of the ACM on Programming Languages) [Paper] [Artifact]

Awards and Honors

- **Third Place**, Undergraduate Category, Student Research Competition — POPL 2020
- **PLMW Travel Award** — POPL 2020

Research Experience

- **Graduate Research Assistant** — UT Austin
  Advisors: Işıl Dillig, Dixin Tang — *Aug 2021 – Present*
- **Research Assistant** — UC San Diego
  Advisor: Nadia Polikarpova — *Jun 2019 – Jun 2021*

Teaching Experience

- **Teaching Assistant**, CS 389L: Automated Logical Reasoning — Spring 2022, UT Austin
- **Tutor**, CSE 130: Programming Languages: Principles and Paradigms — Spring 2021, UC San Diego
- **Teaching Assistant**, Math 10B: Calculus II — Winter 2021, UC San Diego
- **Teaching Assistant**, Math 11: Probability & Statistics — Fall 2020, UC San Diego

Academic Service

- **Artifact Evaluation Committees**
  OOPSLA 2025, OOPSLA 2026, PLDI 2026, CAV 2026

- **Reviewer**
  IEEE Security & Privacy Magazine 2026
- **External Reviewer**
  ISSTA 2026