# Zichen Zhang

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## Education

- **New York University** — Sep 2024–Jun 2029 (expected)
  *Ph.D. in Computer Science* — Manhattan, New York, NY, United States
  – **GPA**: 4.000/4.000
- **University of Science and Technology of China** — Sep 2020–Jul 2024
  *B.E. in Computer Science and Technology* — Shushan, Hefei, AH, China
  – **GPA**: 4.06/4.30
  – **Thesis**: Coq Mechanized Formalization and Verification of Realistic SQL Query Optimization Rules

## Publications & Patents

No accepted publications or patents.

## Talks

- **Building Extensible Program Logics with Effect Handlers** — Oct 3, 2025
  *2025 New England Systems Verification Day* — Cambridge, Middlesex, MA, United States
- **A Coq Mechanized Formalization of Realistic SQL Query Optimization Rules** — May 25, 2024
  *The Third Summit for Students in Hua Xia Talent Program of Computer Science and Technology* — Jin'an, Lu'an, AH, China
- **TranGo: Transparent Hybrid Go Bindings Generation for C Libraries** — Jun 3, 2023
  *The Forth Summit for Students in Talent Programs of "Fundamental Subjects"* — Baohe, Hefei, AH, China
- **TranGo: Transparent Hybrid Go Bindings Generation for C Libraries** — May 28, 2023
  *The Second Summit for Students in Hua Xia Talent Program of Computer Science and Technology* — Shushan, Hefei, AH, China

## Research Projects

- **Building Extensible Program Logics with Effect Handlers** — Nov 2024–Nov 2025
  with Simon Oddershede Gregersen and Joseph Tassarotti — ACSys @ NYU
  – Bridge the gap between using and developing program logic by programming features in effect handlers.
  – Handler-based logic supporting:
    * Concurrency with stronger invariant rule;
    * Distributed execution with IronFleet-style atomic blocks;
    * Crash recovery with Perennial-style crash invariants;
    * Asynchronous disk based on crash-aware prophecy variables.
  – Relational logic for effect handlers.
- **VeriEQL: Bounded Equivalence Verification for Complex SQL Queries with Integrity Constraints (Extension)** — May 2023–Aug 2023
  with Bole Li and Xinyu Wang — MIPL @ UMich
  – Extend the state-of-the-art bounded SQL query verifier VERIEQL.
  – Model SQL query and integrity constraint in SMT with integer theory.
  – Add support for window functions and nested correlated queries.
  – Identify and fix bugs of VERIEQL on query execution order.
  – Increment overall support ratio to 82.3% from 46.1%; decrement spurious counterexample ratio to 6.28% from 38.9%.
- **TranGo: Step towards Automated Generation of Transparent Hybrid Go Bindings for C Libraries** — Aug 2022–Jun 2024
  with Boyao Ding and Yu Zhang — S4Plus @ USTC
  – Semi-automated Go binding generation for C.
  – A generated binding combines CGO calls to the C library and code extracted from existing Go packages, and transparently replaces an existing Go package.
  – $1.97\times$ geomean speedup compared to original pure Go implementation.

## Honors and Awards

- **National Scholarship** of China (top-3 students of each school each grade)  Dec 31, 2021
- **Outstanding Graduation Student** of Anhui Province (58 out of 1889 graduating bachelor's students)  May 1, 2024

## On Campus Working Experience

- **University of Michigan**  Jul 2023–Dec 2023
  *Assistant in Research*  Ann Arbor, Washtenaw, MI, United States

- **University of Science and Technology of China**  Aug 2022–Mar 2023
  *Teaching Assistant @ 011151 (Analog and Digital Circuits)*  Shushan, Hefei, AH, China