

Haobin Ni

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Education

Cornell University

PH.D. IN COMPUTER SCIENCE

- Dissertation: Formal Modeling Languages For High-Assurance Domain-Specific Systems
- Advisors: Robbert van Renesse and Greg Morrisett

Ithaca, NY

July 2017 - May 2024

Shanghai Jiao Tong University

B.S. IN COMPUTER SCIENCE

Shanghai, China

Sep. 2013 - June 2017

Experience

University of Washington

POSTDOCTORAL SCHOLAR

- Worked on the design and implementation of equality-saturation based optimizing compiler, Eggcc
- Worked on the language design and implementation of the Egglog equality saturation engine
- Mentored multiple M.S. and Ph.D. students on the abovementioned research projects

Seattle, WA

Aug. 2024 - Present

Microsoft Corporation

RESEARCH INTERN

- Worked on formally verified parsing of ASN.1, and X.509 in particular, based on EverParse.

Redmond, WA

Summer 2019, 2021, 2022

Publications

Charlotte: Reformulating Blockchains into a Web of Composable Attested Data Structures for Cross-Domain Applications

ISAAC SHEFF, XINWEN WANG, KUSHAL BABEL, **HAOBIN NI**, ROBBERT VAN RENESSE, ANDREW C MYERS

TOCS 2023

Trees and Turtles: Modular Abstractions for State Machine Replication Protocols

NATALIE NEAMTU, **HAOBIN NI**, ROBBERT VAN RENESSE

PaPoC 2023

ASN1*: Provably Correct, Non-malleable Parsing for ASN. 1 DER

HAOBIN NI, ANTOINE DELIGNAT-LAUDAUD, CÉDRIC FOURNET, TAHINA RAMANANANDRO, NIKHIL SWAMY

CPP 2023

Hardening Attack Surfaces with Formally Proven Binary Format Parsers

NIKHIL SWAMY, TAHINA RAMANANANDRO, ASEEM RASTOGI, IRINA SPIRIDONOVA, **HAOBIN NI**,
DMITRY MALLOY, JUAN VAZQUEZ, MICHAEL TANG, OMAR CARDONA, ARTI GUPTA

PLDI 2022

Compositional Security for Reentrant Applications

ETHAN CECCHETTI, SIQIU YAO, **HAOBIN NI**, AND ANDREW C. MYERS

IEEE S&P 2021

Best Paper Award

Selected Research Projects

Functional Reasoning for Distributed Systems with Failures

Feb. 2018 - Jul.2025

- A formal verification framework for asynchronous and Byzantine fault-tolerant distributed systems in Rocq. It features a high-level, synchronous functional semantics for compositional reasoning, which is formally grounded in a low-level, asynchronous operational semantics. Preprint available on arXiv [link].

Harmony: A Concurrent Algorithm Prototyping Tool for System Programmers

Apr. 2020 - Present

- A Python-like programming language and associated model checker for testing and experimenting with concurrent programs designed for usability and performance.
- Harmony has been used in teaching the undergraduate system class at Cornell with over 300 students since 2021. [Link](#)

Selected Honors

May 2024 **Cornell Computer Science Outstanding Community Award**

Ithaca, NY

INTERNATIONAL COLLEGIATE PROGRAMMING CONTEST (ICPC)

May 2016 ICPC World Finals, **2nd Place, Asia Champion, Gold Medal**

Phuket, Thailand

Nov 2015 ICPC Asia Regional Contest Tsukuba Regional, **1st Place**

Tsukuba, Japan

Nov 2015 ICPC Asia Regional Contest Beijing Regional, **1st Place**

Beijing, China

Jun 2014 ICPC World Finals, **6th Place, Silver Medal**

Ekaterinburg, Russia

Oct 2013 ICPC Asia Regional Contest Nanjing Regional, **1st Place**

Nanjing, China

OTHER PROGRAMMING CONTESTS

Oct 2015 China Collegiate Programming Contest, **1st Place**

Nanyang, China

Aug 2015 Google Code Jam Onsite Final, **16th Place**

Seattle, WA

Mar 2015 Facebook Hacker Cup Onsite Final, **5th Place**

San Francisco, CA

Teaching

CS 5199: Competition Programming and Problem Solving Seminar

Cornell

CO-ORGANIZER

Spring 2019, 2020, Fall 2019

Cornell Summer Internship Program

Cornell

MENTOR

Summer 2018

CS 4810: Introduction to Theory of Computing

Cornell

TEACHING ASSISTANT

Fall 2017

CS 3410: Computer System Organization and Programming

Cornell

TEACHING ASSISTANT

Spring 2018

Selected Service

Head Coach

University of Washington

UW ICPC

Fall 2025 - Present

Co-organizer

Cornell

CORNELL HIGH SCHOOL PROGRAMMING CONTEST

Apr. 2018 - Present

Programming Language Reading Group (PLRG) Chair

University of Washington

PROGRAMMING LANGUAGE AND SOFTWARE ENGINEERING (PLSE) GROUP

Fall 2024 - Summer 2025

President, Head Coach

Cornell

CORNELL ACM PROJECT TEAM

May 2018 - May 2024

Coach

Cornell

CORNELL ACM PROJECT TEAM

Sep. 2017 - May 2018

Coach, Lecturer

SJTU

SHANGHAI JIAO TONG UNIVERSITY ACM TEAM

May 2016 - June 2017