

Rui (Gina) Bai

ASSISTANT PROFESSOR OF THE PRACTICE

Department of Computer Science · Vanderbilt University

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Education

North Carolina State University

Raleigh, NC

PH.D. IN COMPUTER SCIENCE

June 2022

- Advisor: Kathryn T. Stolee
- Dissertation: Improving Student Testing Practices through a Lightweight Checklist Intervention
- Committee: Kathryn Stolee (Chair), Sarah Heckman, Thomas Price, Shiyang Jiang, Susan Fisk (External)

Wake Forest University

Winston-Salem, NC

B.S. IN COMPUTER SCIENCE, MINOR IN MATHEMATICS

May 2016

- Magna Cum Laude

Employment History

Vanderbilt University

Nashville, TN

ASSISTANT PROFESSOR OF THE PRACTICE

Fall 2022 - Present

North Carolina State University

Raleigh, NC

GRADUATE RESEARCH ASSISTANT (SUPERVISED BY DR. KATHRYN T. STOLEE)

Fall 2016 - Summer 2022

INSTRUCTOR

Summer 2020, 2021

GRADUATE TEACHING ASSISTANT

Fall 2017, 2020

Mei & Mark LLP

Washington, DC

WEB SUPPORT SPECIALIST (VOLUNTEER)

Dec. 2016 - May 2021

Wake Forest University

Winston-Salem, NC

UNDERGRADUATE TEACHING ASSISTANT

Spring 2015

SUMMER RESEARCH FELLOW (SUPERVISED BY DR. PAÚL PAUCA)

Summer 2014

Teaching Experience

TEACHING

Vanderbilt University

Nashville, TN

INSTRUCTOR

Fall 2022 - Present

- **CS 1101: Programming and Problem Solving - Java**, 3 credit, undergraduate core course
 - Course Coordinator: Fall 2024, Spring 2024, Fall 2023
 - Developed and adapted lecture materials; managed 25+ undergraduate teaching assistants per semester
 - Designed and introduced recitation sessions; supervised the graduate and undergraduate recitation leaders
 - Introduced and managed Autograder for assignment submissions and grading
 - Provided office hours and student meetings; provided assistance to students via emails and piazza posts
 - Semesters Taught/Teaching: Fall 2024 (TBD), Spring 2024 (154 students), Fall 2023 (138 students), Spring 2023 (162 students), Fall 2022 (169 students)
- **CS 2201: Program Design and Data Structures - Java**, 3 credit, undergraduate core course
 - Assisted in course redesign; developed and adapted lecture materials
 - Provided office hours and student meetings; provided assistance to students via emails and piazza posts
 - Semesters Taught/Teaching: Fall 2024 (TBD), Spring 2024 (23 students), Fall 2023 (26 students)

North Carolina State University

Raleigh, NC

INSTRUCTOR

Summer 2020, 2021

- **CSC 116: Introduction to Computing - Java**, 3 credit, undergraduate core course, Summer 2021, 35 students
 - Flipped classroom; delivered lectures and supervised in-class labs synchronously online via Zoom
- **CSC 226: Discrete Mathematics for Computer Scientists**, 3 credit, undergraduate core course, Summer 2020, 21 students
 - Delivered lectures synchronously online via Zoom

- **CSC 712/591: Software Testing**, 3 credit, graduate elective course (for Ph.D. and M.S. students), Fall 2020, 38 students
- **CSC 216: Programming Concepts - Java**, 4 credit, undergraduate core course, Fall 2017, 200+ students (25 in lab)

Wake Forest University

Winston-Salem, NC

UNDERGRADUATE TEACHING ASSISTANT & STUDENT TUTOR

Fall 2013 – Spring 2016

- Undergraduate TA: **CSC 101: Overview of Computer Science**, 3 credit, undergraduate course for non-CS majors/minors
- Tutor: Conducted one-on-one and group tutoring sessions on Computer Science, Mathematics, and Mandarin Chinese

PROFESSIONAL DEVELOPMENT

2023 **Vanderbilt Center for Teaching**, Course Design Institute on Inclusive Teaching

Research Grants

Pending **Improving Software Testing Education through Lightweight Explicit Testing Strategies and Feedback**
North Carolina State University Subcontract of **National Science Foundation Award #2141923**
Amount: \$50,438

Publications [Peer-Reviewed]

JOURNAL ARTICLES

Fair Enough: Searching for Sufficient Measures of Fairness

TOSEM 2023

SUVODEEP MAJUMDER, JOYMALLYA CHAKRABORTY, **GINA R. BAI**, KATHRYN T. STOLEE, TIM MENZIES.

- ACM Transactions on Software Engineering and Methodology

FULL CONFERENCE PAPERS

Evaluating the Effectiveness of a Testing Checklist Intervention in CS2: An Quasi-experimental Replication Study

ICER 2024

GINA R. BAI, ZUOXUAN JIANG, THOMAS W. PRICE, KATHRYN T. STOLEE

- ACM Conference on International Computing Education Research

Does ChatGPT Help With Introductory Programming? An Experiment of Students Using ChatGPT in CS1

ICSE-SEET 2024

YUANKAI XUE, HANLIN CHEN, **GINA R. BAI**, ROBERT TAIRAS, YU HUANG

- IEEE/ACM International Conference on Software Engineering - Software Engineering Education and Training

An Experience Report on Introducing Explicit Strategies into Testing Checklists for Advanced Beginners

ITICSE 2023

GINA R. BAI, SANDEEP STHAPIT, SARAH HECKMAN, THOMAS W. PRICE, KATHRYN T. STOLEE

- ACM conference on Innovation and Technology in Computer Science Education

Check It Off: Exploring the Impact of a Checklist Intervention on the Quality of Student-written Unit Tests

ITICSE 2022

GINA R. BAI, KAI PRESLER-MARSHALL, THOMAS W. PRICE, KATHRYN T. STOLEE.

- ACM Conference on Innovation and Technology in Computer Science Education

How Students Unit Test: Perceptions, Practices, and Pitfalls

ITICSE 2021

GINA R. BAI, JUSTIN SMITH, KATHRYN T. STOLEE.

- ACM Conference on Innovation and Technology in Computer Science Education

How Graduate Computing Students Search When Using an Unfamiliar Programming Language

ICPC 2020

GINA R. BAI, JOSHUA KAYANI, KATHRYN T. STOLEE.

- IEEE/ACM International Conference on Program Comprehension

Exploring Tools and Strategies Used During Regular Expression Composition Tasks

ICPC 2019

GINA R. BAI, BRIAN CLEE, NISCHAL SHRESTHA, CARL CHAPMAN, CIMONE WRIGHT, KATHRYN T. STOLEE.

- IEEE/ACM International Conference on Program Comprehension

Investigating the Effects of Gender Bias on GitHub

ICSE 2019

NASIF IMTIAZ, JUSTIN MIDDLETON, JOYMALLYA CHAKRABORTY, NEILL ROBSON, **GINA R. BAI**, EMERSON MURPHY-HILL.

- IEEE/ACM International Conference on Software Engineering

Exploring Regular Expression Evolution

SANER 2019

PEIPEI WANG, **GINA R. BAI**, KATHRYN T. STOLEE.

- IEEE International Conference on Software Analysis, Evolution and Reengineering

SHORT CONFERENCE PAPERS

Is Assertion Roulette still a test smell? An experiment from the perspective of testing education

VL/HCC 2022

GINA R. BAI, KAI PRESLER-MARSHALL, SUSAN R. FISK, KATHRYN T. STOLEE.

- IEEE Symposium on Visual Languages and Human-Centric Computing

Improving Students' Testing Practices

ICSE Doc Sym 2020

GINA R. BAI.

- IEEE/ACM International Conference on Software Engineering - Doctoral Symposium

Student Supervision & Mentoring

- Spr24-pres **Cameron Scarpati**, Mentored undergraduate research project designing and developing a JetBrains plugin to capture developers' programming and testing practices within the IDE.
- Spr 24 **Allison Jiang**, Mentored undergraduate research project evaluating the effectiveness of a lightweight testing checklist in a classroom setting. Manuscript published in ICER '24.
- Fall 23 **Maxwell Chen**, Mentored undergraduate research project on AI drug design using reinforcement learning and graph neural networks. Presented at Vanderbilt Undergraduate Research Fair.

Invited Talks & Panels

Speaker *How novice testers perceive and perform unit testing?* Never Work in Theory (NWiT), April 25-26, 2023

Panelist Vanderbilt Honor Council Academic Integrity Week Panel, March 1, 2023

Professional Service

SERVICE TO THE PROFESSION

- 2024 **Reviewer**, ACM Conference on Innovation and Technology in Computer Science Education (ITICSE' 24)
- 2023 **Invited Manuscript Reviewer**, Empirical Software Engineering
- 2023 **Program Committee**, Workshop on Advances in Human-Centric Experiments in Software Engineering (HUMAN' 24). Co-located with SANER 2024.
- 2023 **Reviewer**, ACM Special Interest Group on Computer Science Education (SIGCSE' 24)
- 2023 **Reviewer**, ACM Conference on Innovation and Technology in Computer Science Education (ITICSE' 23)
- 2023 **Member**, AP CSA National Advisory Board
- 2022 **Reviewer**, ACM Special Interest Group on Computer Science Education (SIGCSE' 23)
- 2022 **Invited Manuscript Reviewer**, IEEE Transactions on Learning Technologies

College Board

SERVICE TO THE STUDENTS & THE UNIVERSITY

- 2023-pres **Academic Advisor**, School of Engineering, 25 student advisees Vanderbilt
- 2023-pres **Faculty Advisor**, Vanderbilt Chapter of Kappa Theta Pi - Vandy's first pre-professional technology fraternity Vanderbilt
- 2022-pres **Member**, Recitation Committee Vanderbilt
- 2017-20 **Graduate Relations Chair/Member**, NCSU-ACM-W (Women in Computer Science) NC State

SERVICE TO THE COMMUNITY

- 2023 **Invited Judge**, Congressional App Challenge - Invited by the Office of Congressman Mark Green Nashville, TN

Honors & Awards

- 2023 **CRA-WP Career Mentoring Workshop Travel Scholarship Recipient**, Computing Research Association
- 2021 **Graduate Merit Award Recipient**, College of Engineering, North Carolina State University
- 2018 **Grace Hopper Travel Scholarship Recipient**, NCSU-ACM-W (Women in Computer Science)
- 2016-17 **Graduate Research Award Recipient**, College of Engineering, North Carolina State University
- 2014 **Research Fellowship Recipient**, Wake Forest University

Miscellaneous

- Language** English (fluent), Mandarin Chinese (fluent)
- Honor Society** Upsilon Phi Epsilon (International Honor Societies for the Computing and Information Disciplines, invited 2015)