

# 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 &amp; 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]**

\* denotes papers currently under review.

**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 SHAPIT, 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 Scarpatti**, 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 under review.

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

College Board

2022 **Reviewer**, ACM Special Interest Group on Computer Science Education (SIGCSE' 23)

2022 **Invited Manuscript Reviewer**, IEEE Transactions on Learning Technologies

### 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

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- 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

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