Rui (Gina) **Bai**

ASSISTANT PROFESSOR OF THE PRACTICE

Department of Computer Science · Vanderbilt University

✉ rui.bai@vanderbilt.edu | 🌐 ginabai.github.io

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, Shiyan 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   *Aug. 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 AND DR. ROBERT PLEMMONS)   *Summer 2014*

Teaching Experience

TEACHING

Vanderbilt University   *Nashville, TN*

INSTRUCTOR OF RECORD   *Fall 2022 - Present*

- **CS 1101: Programming and Problem Solving - Java**, 3 credit, undergraduate core course
  - **Course Coordinator**: Fall 2023 to present. Managed 25+ undergraduate teaching assistants per semester
  - Developed and adapted lecture materials and assessments; designed and introduced in-class coding practices and exam review sessions
  - Designed and introduced recitation sessions; supervised the graduate and undergraduate recitation leaders
  - Led the transition to using Autograders for assignment submissions and grading, and the class-wide adoption of IDEs
  - Semesters Taught/Teaching (# students): Spr 26 (46), Fall 25 (92), Spr 25 (101), Fall 24 (179), Spr 24 (154), Fall 23 (138), Spr 23 (162), Fall 22 (169)
- **CS 2201: Program Design and Data Structures - Java**, 3 credit, undergraduate core course
  - Assisted in course redesign (from C++ to Java); developed and adapted lecture materials and assessments
  - Semesters Taught/Teaching (# students): Spr 26 (27), 25 (16), Spr 25 (19), Fall 24 (13), Spr 24 (23), Fall 23 (26)

North Carolina State University   *Raleigh, NC*

INSTRUCTOR OF RECORD   *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

GRADUATE TEACHING ASSISTANT   *Fall 2017, 2020*

- **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

AY 25-26	**Vanderbilt AdvancED (The Institute for the Advancement of Higher Education)**, CCC-TEACH seminars
Feb '25	**Computing Research Association**, CRA-E SIGCSE 2025 Pre-Symposium Event: Professional Development for Teaching-Track Faculty
Nov '23	**Computing Research Association**, 2023 CRA-WP Career Mentoring Workshop
May '23	**Vanderbilt AdvancED**, Course Design Institute on Inclusive Teaching

Research Grants

AY 24-25	**DevStats: Code Plagiarism Detector in the Age of Generative AI** 2024-2025 Provost's Faculty Grant for Immersion Vanderbilt Amount: $2,000
01/01/2024-06/30/2026	**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

A Comparative Study on ChatGPT and Checklist as Support Tools for Unit Testing Education   *FSE-SEET 2025*

Zihan Fang, Jiliang Li, Anda Liang, **Gina R. Bai**, Yu Huang

- ACM International Conference on the Foundations of Software Engineering

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

Invited Talks

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

Student Supervision & Mentoring

Sp25-f25 | **Ron Asoulin-Handelman,** Mentored undergraduate research project designing, developing, testing, and evaluating an AI-integrated JetBrains plugin to support testing education

Sp24-pres | **Cameron Scarpati, Dylan Scarpati,** Mentored undergraduate research project designing, developing, testing, and evaluating a JetBrains plugin to capture developers' programming and testing practices within the IDE. *Awarded the 24-25 Provost's Faculty Grant for Immersion Vanderbilt*; Cameron was selected for *Honorable Mention for the 2025-2026 CRA Outstanding Undergraduate Researcher Award*.

Sp-Sum24 | **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. *Selected to present at Vanderbilt Undergraduate Research Fair.*

Professional Service

SERVICE TO THE PROFESSION

2026 | **Invited Manuscript Reviewer,** Springer Empirical Software Engineering

2026 | **Reviewer,** ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE '26)

2025 | **Reviewer,** ACM Special Interest Group on Computer Science Education (SIGCSE '26)

2025 | **Program Committee Member,** IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC '25)

2025 | **Invited Reviewer,** ACM Symposium on User Interface Software and Technology (UIST '25)

2025 | **Reviewer,** ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE '25)

2024 | **Reviewer,** ACM Special Interest Group on Computer Science Education (SIGCSE '25)

2024 | **Reviewer,** ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE '24)

2023 | **Invited Manuscript Reviewer,** Springer Empirical Software Engineering

2023	**Program Committee Member**, 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)	
2022	**Reviewer**, ACM Special Interest Group on Computer Science Education (SIGCSE '23)	
2022	**Invited Manuscript Reviewer**, IEEE Transactions on Learning Technologies	

SERVICE TO THE UNIVERSITY & THE STUDENTS

AY 25-28	**Faculty Advisor**, The Undergraduate Honor Council	*Vanderbilt*
AY 24-26	**Search Committee Chair**, Professor of the Practice Search Committee for the CCC and the CS Department	*Vanderbilt*
F24-pres	**Member**, Faculty Advisory Council of The College of Connected Computing	*Vanderbilt*
Nov '24	**Keynote Speaker**, Vanderbilt chapter of Global China Connection - China Talk	*Vanderbilt*
F23-pres	**Academic Advisor**, School of Engineering, 22 undergraduate and 7 graduate student advisees	*Vanderbilt*
F23-pres	**Faculty Advisor**, Vanderbilt Chapter of Kappa Theta Pi - Vandy's first pre-professional technology fraternity	*Vanderbilt*
March '23	**Panelist**, Vanderbilt Honor Council Academic Integrity Week Panel	*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* |
| 2023 | **Member**, AP CSA National Advisory Board | *College Board* |

Honors & Awards

2025	**ACM SIGCSE Henry Walker Travel Grant Recipient**, Association for Computing Machinery SIGCSE
2025	**CRA-E SIGCSE 2025 Pre-Symposium Event Travel Grant Recipient**, Computing Research Association
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) |