Anshul Shah

Curriculum Vitae

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Education

2021–2026 **University of California, San Diego**, *La Jolla, CA*
Ph.D. in Computer Science
Advisors: Gerald Soosairaj, Leo Porter, Bill Griswold
Thesis: *Bridging the Gap: Aligning Computing Education with Modern Software Development*

2017–2021 **Duke University**, *Durham, NC*
B.S. in Computer Science and Statistics
Advisor: Kristin Stephens-Martinez

Research Interests

Computer Science Education, Human-AI Interaction, Empirical Software Engineering

Awards and Honors

2025 **Best Paper Award**, *ICER 2025*
Selected out of 31 papers for my paper titled: *Needles in a Haystack: Student Struggles with Working on Large Code Bases.*

2025 **Specialist in Student-Centered College Teaching**, *UC San Diego*
Awarded after completing 40 total hours of advanced pedagogical training in using evidence-based practices to guide student learning and implementing student-centered teaching practices as an instructor of record.

2025 **Doctoral Award for Teaching Excellence**, *UC San Diego CSE*
Selected as one of two doctoral students for my contributions in co-creating, teaching, and writing a textbook for the "Working with Large Code Bases" course.

2025 **Summer Graduate Teaching Scholar**, *UC San Diego*
Selected as a campus-wide "Graduate Teaching Scholar" by UC San Diego to teach my own course in Summer 2025.

2022-2024 **Cultural Competence in Computing (3C) Fellow**, *Cohort 3*
Selected to complete a professional development program to learn about the relationship between critical social issues and computing and to implement a sustainable, ethics-based project to address these issues.

2021 **Denardis Memorial Award**, *Duke CS*
Selected as one of two students to receive this award for my service to the CS department, including extensive teaching assistant service and creating a personalized self-assessment tool for the intro CS course.

Funding

Grants I Wrote

Awarded 2024 **Improving Student Comprehension of Programming Components within Large Code Bases**, *NSF Award Number 2417531*, $300,000
Awarded by NSF to investigate student struggles with working on large code bases, including struggles related to program comprehension, code quality, and AI-assisted development and to develop a course to address these struggles.

Awarded 2023 **Course Development and Instructional Improvement Program**, *UC San Diego*, $50,000
Awarded by UC San Diego for the development of course materials and curriculum redesign of CSE190: Working with Large Code Bases.

Grants I Executed

Awarded 2020 **Determining the Effectiveness of Live Coding on Student Learning in Introductory Programming**, *NSF Award Number 2044473*, $300,000

Awarded by NSF to evaluate the impact of live coding on students' programming processes, lecture engagement, and course outcomes.

Invited Talks and Interviews

Oct. 2025 **"How can computer science educators teach students to calibrate their trust in GenAI programming tools?"**, *UCSD Jacobs School of Engineering*

Our research paper titled *Evolution of Programmers' Trust in Generative AI Programming Assistants* was featured in a recent newsletter by JSOE.

Oct. 2025 **"UC San Diego prepares students for AI-driven industry with GitHub Copilot"**, *Microsoft*

Along with Prof. Leo Porter, I was interviewed about my use of GitHub Copilot in my teaching and research related to software engineering education.

Oct. 2025 **Understanding How Students Work with Large Code Bases**, *California Polytechnic*, Invited by Prof. Ayaan Kazerouni

Presented my work to identify students' struggles to contribute to large code bases (with and without GenAI) and my recommendations for software engineering education.

Mar. 2025 **Teaching Assistant (TA) Panel**, *UC San Diego*

Served as a panelist for the UCSD course for TA training where I shared my experience and advice to first-time teaching assistants

Dec. 2024 **Teaching Assistant (TA) Panel**, *UC San Diego*

Served as a panelist for the UCSD course for TA training where I shared my experience and advice to first-time teaching assistants

Oct. 2024 **Designing and Implementing the "Working with Large Code Bases" course**, *UC Davis*, Invited by Prof. Joël Porquet-Lupine

Presented about the motivation, design, and implementation of the "Working with Large Code Bases" course at UCSD.

Publications

[1] Annapurna Vadaparty, **Anshul Shah**, Anya Chernova, Jack Kissinger, Jenish Thanki, David Smith, Daniel Zingaro, and Leo Porter. Navigating Creative Coding: Novice User Experiences with GenAI in Open-Ended Programming Tasks (in submission), 2025.

[2] Francis Geng, **Anshul Shah**, Haolin Li, Nawab Mulla, Steven Swanson, Gerald Soosai Raj, Daniel Zingaro, and Leo Porter. Exploring Student-AI Interactions in Vibe Coding (in submission), 2025.

[3] **Anshul Shah**, Thomas Rexin, Elena Tomson, Leo Porter, William G. Griswold, and Adalbert Gerald Soosai Raj. Evolution of Programmers' Trust in Generative AI Programming Assistants. In *25th Koli Calling International Conference on Computing Education Research*, (Koli Calling '25), 2025.

[4] 🏆 **Anshul Shah**, Thomas Rexin, Anya Chernova, Gonzalo Allen-Perez, William G. Griswold, and Adalbert Gerald Soosai Raj. Needles in a Haystack: Student Struggles with Working on Large Code Bases. In *Proceedings of the 2025 ACM Conference on International Computing Education Research V.1*, ICER '25, page 27–40, New York, NY, USA, 2025. Association for Computing Machinery.

[5] **Anshul Shah**, Thomas Rexin, Gonzalo Allen-Perez, Kevin Wu, William G. Griswold, and Adalbert Gerald Soosai Raj. Identifying Students' Code Quality Defects while Contributing to Large Code Bases. In *Proceedings of the 30th ACM Conference on Innovation and Technology in Computer Science Education V. 1*, ITiCSE 2025, page 514–520, New York, NY, USA, 2025. Association for Computing Machinery.

[6] **Anshul Shah**, Thomas Rexin, Fatimah Alhumrani, William G. Griswold, Leo Porter, and Gerald Soosai Raj. An Empirical Evaluation of Active Live Coding in CS1. *ACM Transations on Computing Education*, June 2025. Just Accepted.

[7] **Anshul Shah**, Thanh Tong, Elena Tomson, Steven Shi, William G. Griswold, and Adalbert Gerald Soosai Raj. Students' Program Comprehension Processes in a Large Code Base. In *2025 IEEE/ACM 33rd International Conference on Program Comprehension (ICPC)*, pages 182–193, Los Alamitos, CA, USA, April 2025. IEEE Computer Society.

[8] **Anshul Shah**, Anya Chernova, Elena Tomson, Leo Porter, William G. Griswold, and Adalbert Gerald Soosai Raj. Students' Use of GitHub Copilot for Working with Large Code Bases. In *Proceedings of the 56th ACM Technical Symposium on Computer Science Education V. 1*, SIGCSE 2025, New York, NY, USA, 2025. Association for Computing Machinery.

[9] Gonzalo Allen-Perez, Luis Millan, Brandon Nghiem, Kevin Wu, **Anshul Shah**, and Adalbert Gerald Soosai Raj. An Analysis of Students' Testing Processes in CS1. In *Proceedings of the 56th ACM Technical Symposium on Computer Science Education V. 1*, SIGCSETS 2025, page 46–52, New York, NY, USA, 2025. Association for Computing Machinery.

[10] Cruz Izu, Claudio Mirolo, Jürgen Börstler, Harold Connamacher, Ryan Crosby, Richard Glassey, Georgiana Haldeman, Olli Kiljunen, Amruth N. Kumar, David Liu, Andrew Luxton-Reilly, Stephanos Matsumoto, Eduardo Carneiro de Oliveira, SeÁn Russell, and **Anshul Shah**. Introducing Code Quality at CS1 Level: Examples and Activities. In *2024 Working Group Reports on Innovation and Technology in Computer Science Education*, ITiCSE 2024, page 339–377, New York, NY, USA, 2025. Association for Computing Machinery.

[11] **Anshul Shah**, Vardhan Agarwal, William G. Griswold, Leo Porter, and Adalbert Gerald Soosai Raj. In-Person vs Blended Learning: An Examination of Grades, Attendance, Peer Support, Competitiveness, and Belonging. In *Proceedings of the 2024 on Innovation and Technology in Computer Science Education V. 1*, ITiCSE 2024, page 422–428, New York, NY, USA, 2024. Association for Computing Machinery.

[12] **Anshul Shah**, Fatimah Alhumrani, William G. Griswold, Leo Porter, and Adalbert Gerald Soosai Raj. A Comparison of Student Behavioral Engagement in Traditional Live Coding and Active Live Coding Lectures. In *Proceedings of the 2024 on Innovation and Technology in Computer Science Education V. 1*, ITiCSE 2024, page 513–519, New York, NY, USA, 2024. Association for Computing Machinery.

[13] **Anshul Shah** and Adalbert Gerald Soosai Raj. A Review of Cognitive Apprenticeship Methods in Computing Education Research. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1*, SIGCSE 2024, New York, NY, USA, 2024. Association for Computing Machinery.

[14] **Anshul Shah**, Jerry Yu, Thanh Tong, and Adalbert Gerald Soosai Raj. Working with Large Code Bases: A Cognitive Apprenticeship Approach to Teaching Software Engineering. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1*, SIGCSE 2024, New York, NY, USA, 2024. Association for Computing Machinery.

[15] **Anshul Shah**, Emma Hogan, Vardhan Agarwal, John Driscoll, Leo Porter, William G. Griswold, and Adalbert Gerald Soosai Raj. An Empirical Evaluation of Live Coding in CS1. In *Proceedings of the 2023 ACM Conference on International Computing Education Research - Volume 1*, ICER 2023, New York, NY, USA, 2023. Association for Computing Machinery.

[16] Mrinal Sharma, Hayden McTavish, Zimo Peng, **Anshul Shah**, Vardhan Agarwal, Caroline Sih, Emma Hogan, Ismael Villegas Molina, Adalbert Gerald Soosai Raj, and Kristen Vaccaro. Engagement and Anonymity in Online Computer Science Course Forums. In *Proceedings of the*

2023 ACM Conference on International Computing Education Research - Volume 1, ICER 2023, New York, NY, USA, 2023. Association for Computing Machinery.

[17] **Anshul Shah**. Improving Students' Programming Processes Using Cognitive Apprenticeship Methods. In *Proceedings of the 2023 ACM Conference on International Computing Education Research - Volume 2*, ICER 2023, New York, NY, USA, 2023. Association for Computing Machinery.

[18] **Anshul Shah**, Vardhan Agarwal, Michael Granado, John Driscoll, Emma Hogan, Leo Porter, William Griswold, and Adalbert Gerald Soosai Raj. The Impact of a Remote Live-Coding Pedagogy on Student Programming Processes, Grades, and Lecture Questions Asked. In *Proceedings of the 2023 Conference on Innovation and Technology in Computer Science Education V. 1*, ITiCSE 2023, New York, NY, USA, 2023. Association for Computing Machinery.

[19] **Anshul Shah**, Michael Granado, Mrinal Sharma, John Driscoll, Leo Porter, William G. Griswold, and Adalbert Gerald Soosai Raj. Understanding and Measuring Incremental Development in CS1. In *Proceedings of the 54th ACM Technical Symposium on Computer Science Education V. 1*, SIGCSE 2023, New York, NY, USA, 2023. Association for Computing Machinery.

[20] **Anshul Shah**, Jonathan Liu, Kristin Stephens-Martinez, and Susan H. Rodger. The CS1 Reviewer App: Choose Your Own Adventure or Choose for Me! In *Proceedings of the 26th ACM Conference on Innovation and Technology in Computer Science Education V. 1*, ITiCSE 2021, New York, NY, USA, 2021. Association for Computing Machinery.

Teaching Experience

Instructor of Record

Summer 2025	CSE8A: Introduction to Programming	*UCSD, 7 students*
Spring 2024	CSE190: Working with Large Code Bases	*UCSD, 50 students*

Teaching Assistant

Spring 2025	CSE190: Working with Large Code Bases	*UCSD, 100 students*
Fall 2023	CSE11: Accelerated Intro to Programming	*UCSD, 600 students*
Spring 2023	CSE190: Working with Large Code Bases	*UCSD, 50 students*
Fall 2022	CSE8A: Introduction to Programming	*UCSD, 350 students*
Summer 2022	Data Science with Pandas	*AI4All Online Course*
Summer 2021	CS216: Everthing Data	*Duke, 100 students*
2018-2021	(6x) CS101: Introduction to Computer Science	*Duke, ∼200 students*

Textbooks

2024 Anshul Shah and Gerald Soosai Raj. Working with Large Code Bases. `https://cogniterra.org/course/752/syllabus`.

Mentoring

Student Research Mentorship

PhD Student	Annapurna Vadaparty
PhD Student	Francis Geng
MS Student	Thomas Rexin | *now PhD student @ NC State*
BS Student	Gonzalo Allen-Perez | *now MS student @ UCSD*
BS Student	Vardhan Agarwal | *now SWE @ Amazon*
BS Student	John Driscoll | *now MS student @ UCSD*
BS Student	Michael Granado | *now MS student @ Stanford*

BS Student	Elena Tomson | *now MS student @ UCSD*
BS Student	Steven Shi
BS Student	Anya Chernova
BS Student	Luis Millan
BS Student	Brandon Ngeihm
BS Student	Kevin Wu
BS Student	Fatimah Alhumrani

Teaching Assistant Mentorship

Fall 2024	Mentor for TA Training Course (CSE599)
Winter 2023	Mentor for TA Training Course (CSE599)
Spring 2022	Mentor for TA Training Course (CSE599)

Service

Reviewer	ACM TOCE
PC Member	ICER 2025
Reviewer	SIGCSE TS 2026
Reviewer	Koli 2025
Reviewer	ITICSE 2025
Reviewer	SIGCSE TS 2026
Reviewer	ITICSE 2024
Reviewer	SIGCSE TS 2024