Murtaza Ali

Ph.D. Candidate, Human-Centered Design & Engineering
University of Washington

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Google Scholar

*My work has shown that connecting programming to learners' home disciplines is key to engaging them in computing. I design pedagogical frameworks and systems that help end-user programmers preserve **domain intuition** and **understanding** when programming with generative AI.*

Research threads: ● Non majors learning to code ■ Domain intuition with generative AI ◆ Computing education evaluation

EDUCATION

2021–2027 **Ph.D., Human-Centered Design & Engineering** — University of Washington
Concentration in Computer Science Education · Expected June 2027
Advisors: Sayamindu Dasgupta and Cecilia Aragon

2017–2021 **B.A., Applied Mathematics** — University of California, Berkeley
Concentration in Computer Science

PUBLICATIONS

† Mentored student · Titles link to papers

> **A note on venues.** In HCI and computing education, peer-reviewed conferences such as CHI and ICER are highly selective archival venues, comparable to journals in other disciplines.

Refereed Conference and Journal Papers

TOCE ●■
accepted pending minor revisions

Understanding the Learning-to-Code Experiences of End-User Programmers
Murtaza Ali and Sayamindu Dasgupta
ACM Transactions on Computing Education. Accepted pending minor revisions.

CHI 2025 ●
24.9% acceptance

"Even Though I Went Through Everything, I Didn't Feel Like I Learned a Lot": Insights From Experiences of Non-Computer Science Students Learning to Code
Murtaza Ali and Sayamindu Dasgupta
Proc. ACM CHI Conference on Human Factors in Computing Systems, Article 49, 1–18.

ICER 2024 ◆
20.1% acceptance

Using Benchmarking Infrastructure to Evaluate LLM Performance on CS Concept Inventories: Challenges, Opportunities, and Critiques
Murtaza Ali, Prerna Rao, Yifan Mai, and Benjamin Xie
Proc. ACM Conference on International Computing Education Research, 452–468.

ICER 2023 ◆
21% acceptance

Taking Stock of Concept Inventories in Computing Education: A Systematic Literature Review
Murtaza Ali, Sourojit Ghosh, Prerna Rao†, Raveena Dhegaskar†, Sophia Jawort†, Alix Medler†, Mengqi Shi†, and Sayamindu Dasgupta
Proc. ACM Conference on International Computing Education Research, 397–415.

HCII 2023

"Do we like this, or do we like *like* this?": Reflections on a Human-Centered Machine Learning Approach to Sentiment Analysis
Sourojit Ghosh, **Murtaza Ali**, Anna Batra, Cheng Guo, Mohit Jain, Joseph Kang, Julia Kharchenko, Varun Suravajhela, Vincent Zhou, and Cecilia Aragon
Artificial Intelligence in HCI (HCII 2023), Springer, 63–82.

In Progress

2026 manuscript in preparation
- "Can You Use That LLM to Help You Understand What's Happening?": Exploring Help Abuse and Avoidance in Data Visualization Education
  Murtaza Ali and Cecilia Aragon

2026 manuscript in preparation
- "A Product I'm Proud of That I Definitely Didn't Fully Understand": A Collaborative Autoethnography of Undergraduate Engineering Vibe Coding Practices
  Mina Zavary[†], **Murtaza Ali**, Christian Lucas Chung[†], Maya Gillaspy[†], Veronique Gunawan[†], Kiefer Law[†], Madison M. A. McLean[†], and Sayamindu Dasgupta

Refereed Opinion, Magazine, Workshop, and Extended-Abstract Papers

TOCE 2026 opinion
GenAI, Emotion, and Computing Education: A Case for Hope in the Face of AI Encroachment
Murtaza Ali
ACM Transactions on Computing Education.

ICER 2026 extended abstract
- End-User Programming Literacy in the Generative AI Age
  Murtaza Ali
  Proc. ACM Conference on International Computing Education Research, Vol. 2, 47–48.

Inroads 2025 column
- Automated Benchmarking Infrastructure: Moving Toward Robust Investigations of GenAI in Computing Education
  Murtaza Ali and Benjamin Xie
  ACM Inroads 16(2), 46–51.

CHI 2024 workshop
Tinker or Transfer? A Tale of Two Techniques in Teaching Visualization
Adam Hyland and **Murtaza Ali**
Workshop on Toward a More Comprehensive Definition of Data Literacy, CHI 2024.

GRANTS AND AWARDS

2026
- **Seed-AI Grant, University of Washington** $33,982
  PI: Cecilia Aragon. My role: shaped the project's ideas and framing and wrote the initial proposal draft. Funded the study of LLM help-seeking in data visualization education, now a manuscript in preparation. Program

2021–2022
EECS Outstanding Teaching Assistant Award UC Berkeley
One of 14 recipients in a department with several hundred TAs, selected from faculty nominations of roughly the top 9% of TAs in the department. Awardees

2019–2020
Outstanding Graduate Student Instructor Award UC Berkeley
Campus-wide teaching award; departments may nominate up to 10% of their GSIs each year. Awardees

RESEARCH EXPERIENCE

2022–present
Graduate Researcher University of Washington
Learning, Epistemology, and Design Lab & Human-Centered Data Science Lab.

> SYSTEMS
>
> - **Domain Decision Points for AI-Assisted Workflows** Prototype in development
>
> A Jupyter-based learning environment. AI agents help with programming workflows but return key domain decisions to learners, who then reflect and iterate on their approaches. Designed to build domain intuition and understanding alongside AI use.

2020–2021
Undergraduate Researcher, RISE Lab UC Berkeley
Advisor: Aditya Parameswaran. Studied how visualizations shape public perception of COVID-19 interventions.

2018 **Student Research Intern** — Lawrence Berkeley National Laboratory
Advisor: William Collins. Analyzed climate simulation data for tropical cyclones.

TEACHING

More than 1,200 students taught: over 1,000 in UC Berkeley's CS 10 and about 200 in UW's HCDE 411.

Instructor of Record

Taught as the course's instructor, with the same teaching responsibilities as faculty: course design, lectures, assessment, and final grades.

2023–2026 **HCDE 411: Information Visualization** — University of Washington
Instructor or co-instructor of record across five offerings, about 200 students. Teaching effectiveness 4.7/5.0, averaged across four evaluated offerings.
Spring 2023, Autumn 2023, Winter 2024, Spring 2025, Winter 2026

Winter 2023 **HCDE 511: Information Visualization (graduate)** — University of Washington

Summer 2021 **Co-lecturer, CS 10: The Beauty and Joy of Computing** — UC Berkeley
One of two instructors for Berkeley's introductory computing course for non majors.

Teaching Assistant

2024–2026 **HCDE 310: Interactive Systems Design and Technology** — University of Washington
Autumn 2024, Autumn 2025, Autumn 2026

Winter 2025 **HCDE 411: Information Visualization** — University of Washington

2022–2023 **CSE 163: Intermediate Data Programming** — University of Washington
Spring 2022, Winter 2023, Summer 2023

Spring 2021 **CS 61A: Structure and Interpretation of Computer Programs** — UC Berkeley

Fall 2020 **Head TA, CS 10: The Beauty and Joy of Computing** — UC Berkeley
Led a staff of 20 for about 300 students. Teaching effectiveness 4.9/5.0 (course survey).

2019–2020 **CS 10: The Beauty and Joy of Computing** — UC Berkeley
Spring 2019, Fall 2019, Spring 2020

Online and K–12 Teaching

2023 **Instructor, Python Crash Course** — Uplimit
Taught two cohorts of one of the platform's highest-rated courses.

2022–2023 **Virtual Computer Science Instructor** — 2Sigma School
Taught introductory computer science live and remotely at Hyde Park Schools in Austin, TX, which could not hire an in-person CS teacher.

MENTORING

2025–2026 ■ **Directed Research Group (DRG)** — University of Washington
Co-mentored six undergraduate researchers for a collaborative autoethnography of vibe coding alongside a fellow PhD student; guided analysis and writing. Manuscript in preparation.

2022–2023 ◆ **Directed Research Group (DRG)** — University of Washington
Led five student researchers (three master's, two undergraduate), alongside a fellow PhD student, through a systematic literature review, resulting in an ICER 2023 paper.

2024 **Two HCDE 411 students** — University of Washington
Advised them in developing their final course project into a research project: interactive physical choropleth maps to help children explore environmental impact.

APPLIED AI EDUCATION AND WORKFORCE LEARNING

2026 — **Apple** *AI Education Intern, Community Education Initiative*
Implemented human-centered AI education resources for practitioners and educators, and delivered AI learning experiences to universities, nonprofits, and libraries.

2026 — **Instride** *Instructional Designer and Subject Matter Expert*
Designed Instride's first AI Accelerator for working professionals, reaching hundreds of learners per offering across healthcare and technology companies.

2024–2026 — **Southern New Hampshire University** *Instructional Designer*
Contributed to a nine-course professional curriculum across Beginner GenAI, Advanced GenAI, and Data Literacy sequences; designed and built seven courses from scratch and revised two.
SNHU Professional Skills

2023–2025 — **Uplimit** *Course Development Partner*
Co-developed the Introductory Series on AI and Prompt Engineering and foundational data science courses.

> CLIENT PROJECT
>
> **Sony Interactive Entertainment (PlayStation)** 2025
> Partnered directly with the company's program lead to redesign an in-person mentoring and leadership development course as a primarily asynchronous program, now used in the company's internal training worldwide.
>
> **GenAI integration.** Built GenAI role-plays, interactive learning experiences, and activities into the course itself.

TALKS

Conference Presentations

2025 — **CHI 2025** Yokohama, Japan
Insights From Experiences of Non-Computer Science Students Learning to Code

2024 — **ICER 2024** Melbourne, Australia
Using Benchmarking Infrastructure to Evaluate LLM Performance on CS Concept Inventories

2023 — **ICER 2023** Chicago, IL
Taking Stock of Concept Inventories in Computing Education

Guest Lectures, CS 10, UC Berkeley

2019–2020 — **History of Cryptography (Oct 2019, Jun 2020); Limits of Computing (Apr 2019)**

PUBLIC SCHOLARSHIP AND MEDIA

2026 — **Quoted, Associated Press** August 3, 2026
At Colleges, the AI Boom Means Everyone Wants to Dabble in Computer Science, by Heather Hollingsworth. Distributed by the AP wire to outlets in the U.S. and abroad, including the *Los Angeles Times*, *Fortune*, *The Star* (Malaysia), and *La Nación* (Argentina).

2022 — **Featured, Towards Data Science Author Spotlight** Interview
After Doing Your Research, It's Time to Trust Your Instinct. Interviewed by the publication's editors about my path into data science, writing, and teaching.

2022–present — **Author, Towards Data Science** 50+ articles
Widely read author writing on data science and programming for beginners and non-traditional programmers. Author page

Selected: *Data Visualization Explained* (five-part series, 2025); *I Teach Data Viz with a Bag of Rocks* (2025); *The Dangers of Deceptive Data* (two parts, 2025); *AI Ethics for the Everyday User* (2025).

SERVICE

2025–present	**Feature Editor**	*ACM XRDS*
2026	**Assistant to Learning, Education, and Families Subcommittee Chairs**	ACM CHI 2026
2025, 2027	**External Reviewer** Two special recognitions for review quality (CHI 2025).	ACM CHI 2025, 2027
2025	**External Reviewer**	*ACM Transactions on Computing Education*