Ruijia (Regina) Cheng

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Research Keywords:
Human-computer Interaction; Human centered machine learning; Developer tools; Creativity support; End-user programming; Data literacies; Social computing; Learning technology

Education

2023 **University of Washington**
Doctor of Philosophy in Human Centered Design & Engineering
Committee: Benjamin Mako Hill, Jennifer Turns, Sayamindu Dasgupta, Amy Zhang

2021 **University of Washington**
Master of Science in Human Centered Design & Engineering

2018 **University of California, San Diego**
Magna Cum Laude
Bachelor of Science in Cognitive Science with a Specialization in Computation
Bachelor of Science in Mathematics: Applied Science

Professional Research Experiences

07/23 – present **Apple** | Human Centered Machine Intelligence (HCMI)
AI/ML Resident.
Supervisor: Jeff Nichols.

- Led and collaborated in research projects that employ machine learning and Large Language Models (LLMs) for UI understanding, creativity, and developer support [C1, U1].
- Designed and conducted human centered research around AI systems; designed and build AI-powered research prototypes.
- Presented research outcomes to VP-level directors and in company-wide summits.

09/18 – 06/23 **University of Washington** | Human Centered Design & Engineering
Graduate Research Assistant.

- Led mix method research projects to understand and design for end-user programmers in online communities [C3, C4], data science collaboration and communication [C8], visual block-based programming systems for data literacy [C2], and creative feedback exchange [C5, C9].

06/22 – 09/22 **Microsoft Research** | Software Analysis and Intelligence in Engineering Systems (SAINTES)
PhD Research Intern.
Supervisors: Denae Ford, Tom Zimmermann.

- Led a multi-phase research project (interview, prototyping, & design probe) to support developers build trust in LLM-powered code generation tools through sociotechnical affordances [J1].

- Collaborated in research about responsible interface design in LLM-powered code generation tools [U2].
- Contributed to metrics of trust in LLM for software development.

09/21– **Dataminr** | Human AI Innovation
12/21 ***PhD Research Intern.***
Supervisors: Alison Smith-Renner, Ke Zhang.

- Led and collaborated in research on human-in-the-loop text summarization [C6, C7, S1].
- Conducted a systematic literature review and synthesized 600+ papers into design patterns.
- Developed interactive prototypes and conducted design probe interview studies with crowd workers.
- Established design guidelines for internal human-AI collaborative text summarization tools.

06/21– **Northwestern University** | Community Data Science Collective
09/21 ***Visiting Researcher.***

- Led a large-scale quantitative study on data literacy and social media discussion about COVID-19.
- Built datasets of cross-platform social media activities about COVID-19.

03/21– **Microsoft** | Education via i2e LLC
06/21 ***Project Intern.***
Supervisor: Jonathan Grudin.

- Designed and developed K-12 curricula, user scenarios and interaction guides for Search Coach, a K-12 education product.

06/20 – **Facebook** | Watch
09/20 ***UX Research Intern.***

- Designed & conducted usability tests, 20k+ in-app surveys in 5 countries, and 20k+ user logs analysis.
- Impacted the design of recommendation algorithms and video players.
- Collaborated effectively with cross-functional teams (engineering, design, and data) and vendors.

10/16 – **University of California, San Diego** | Design Lab
01/18 ***Undergraduate Research Assistant.***
Supervisors: Steven Dow, Joel Chan, Jim Hollan.

- Led survey and online experiment studies on crowd creativity and problem framing [S2].
- Conducted thematic analyses and topic modeling on narrative patterns in computational notebooks.

Publications *indicates equal contribution of the authors

Under Review Manuscripts

U1. Tseng, T., **Cheng, R.**, Nichols, J. Designing Animations using Large Language Models [Title modified to ensure blind review]. 2024. Under review for the ACM Conference on Designing Interactive Systems (DIS 2024).

U2. Wang, R., **Cheng, R**., Ford, D., Zimmermann, T. Responsible Design in AI-powered Code Generation [Title modified to ensure blind review]. 2024. Under review for the ACM Conference on Fairness, Accountability, and Transparency (FaccT 2024).

Journal Publications

J1. **Cheng, R**., Wang, R., Zimmermann, T., & Ford, D. (2023). " It would work for me too": How Online Communities Shape Software Developers' Trust in AI-Powered Code Generation Tools. Accepted to ACM Transactions on Interactive Intelligent Systems (TiiS).

Peer-reviewed Conference Proceedings

C1. Taeb, M., Swearngin, A., Schoop, E., **Cheng, R.**, Jiang, Y., & Nichols, J. AXNav: Replaying Accessibility Tests from Natural Language. 2024. Accepted to the ACM Conference on Human Factors in Computing Systems (CHI 2024).

C2. **Cheng, R**., Dangol, A., Ello, F., Wang, L., Dasgupta, S. Concepts, practices, and perspectives for developing computational data literacy: Insights from workshops with a new data programming system. 2023. Proceedings of the ACM Interaction Design and Children Conference (IDC 2023).

C3. **Cheng, R**., Dasgupta, S., Hill, B. How Interest-Driven Content Creation Shapes Opportunities for Informal Learning in Scratch: A Case Study on Novices' Use of Data Structures. 2022. Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2022). ***Best Paper Honorable Mention Award (Top 5%)***

C4. **Cheng, R**., Hill, B. Many Destinations, Many Pathways: A Quantitative Analysis of Legitimate Peripheral Participation in Scratch. 2022. Accepted to the ACM Human Computer Interaction, Computer Supported Cooperative Work and Social Computing Conference (CSCW 2022).

C5. **Cheng, R**., * Frens, J.* Feedback Exchange and Online Affinity: A Case Study of Online Fanfiction Writers. 2022. Accepted to the ACM Human Computer Interaction, Computer Supported Cooperative Work and Social Computing Conference (CSCW 2022).

C6. **Cheng, R.**, Smith-Renner, A., Zhang, K., Tetreault, J., Jaimes, A. Mapping the Design Space of Human-AI Interaction in Text Summarization. 2022. Accepted to the North American Chapter of the Association for Computational Linguistics Special Theme: Human-Centered Natural Language Processing (NAACL 2022).

C7. Lai, V., Smith-Renner, A., Zhang, K., **Cheng, R.**, Zhang, W., Tetreault, J., Jaimes, A. An Exploration of Post-Editing Effectiveness in Text Summarization. 2022. Accepted to the North American Chapter of the Association for Computational Linguistics Special Theme: Human-Centered Natural Language Processing (NAACL 2022).

C8. **Cheng, R.**, Zachry, M. Building Community Knowledge in Online Data Science Competitions: Motivation, Practices and Challenges. 2020. Proceedings of the ACM Human Computer Interaction, Computer Supported Cooperative Work and Social Computing (CSCW 2020).

C9. **Cheng, R.**, Zeng, Z., Liu M., Dow, S. Critique Me: Exploring How Creators Publicly Request Feedback in an Open Online Community. 2020. Proceedings of the ACM Human Computer Interaction, Computer Supported Cooperative Work and Social Computing (CSCW 2020).

Short Papers, Posters, and Workshop Papers

S1. **Cheng, R.**, Smith-Renner, A., Zhang, K., Tetreault, J., Jaimes, A. Trust and Reliance in Human-AI Collaborative Text Summarization. 2022. Workshop paper in the Trust and Reliance in Human-AI Teams workshop in the ACM Conference on Human Factors in Computing Systems (CHI 2022).

S2. **Cheng, R.**, De Castro, J., Dow, S., Chan, J. 2018. An Exploratory Study of Problem Framing in Distributed Collaborative Design. Short paper in the ACM Group Conference (Group 2018).

S3. Singh, F., Smith, A., Dudeck, N., Herrera, E., Lee, J., Yang, Z., **Cheng, R.**, Pineda, J. 2016. A Pilot Study to Assess

the Effects of EEG-Gamma Neurofeedback on Working Memory in Schizophrenia Patients. Poster in the Society for Neuroscience 2016 Annual Conference (SfN 2016).

Awards & Honors

2023 EECS Rising Stars

2023 Special Recognition of Outstanding Reviews, CHI 2024

2022 Best Paper Honorable Mention Award, CHI 2022

2020 Special Recognition of Outstanding Reviews, CSCW 2020

2014–18 Provost Honor, University of California, San Diego

Invited Talks

2023 "Online Communities and Trust in AI-powered Code Generation tools." Poster Presentation at the EECS Rising Stars Workshop. Georgia Institute of Technology. Atlanta, GA.

2023 "Understanding and designing for community-supported programming with data and AI." Presentation in the department of Information Science & Technology, George Mason University. Fairfax, VA.

2023 "Supporting Rising Programmers through a Sociotechnical Lens." Presentation at Apple Machine Learning Research. Webinar.

2022 "Developer's Trust in AI-powered Code Generation." Presentation at Microsoft Research. Webinar.

2022 "Supporting Computational Learning in Online Communities." Presentation at Microsoft MakeCode. Microsoft Research. Webinar.

2022 "Understanding and Supporting Informal Learning in Online Communities." Presentation at The Expertise@scale Salon. Emory University. Webinar.

2022 "All Communities Are Learning Communities." Main speaker at The Science of Community Dialogues. Community Data Science Collective. Webinar.

2022 "Online Communities and Trust in AI-powered Code Generation tools." Presentation at Microsoft Research HCI seminar. Microsoft Research. Redmond, WA.

2021 "Data Scientists or Conspiracists: Critical Discourses about COVID Data among Pro- and Anti-vaccine Tweets." Presentation at the HCDE research seminar (Autumn 2021). University of Washington. Webinar.

2021 "Imagining Future Design of Tools for Youth Data Literacies." Workshop organizer at the Connected Learning Summit 2021. Webinar.

2019 "Feedback-Seeking in Online Fanfiction Communities." Poster presentation at the 2019 HCDE Research Showcase. University of Washington. Seattle, WA.

2017 "Plug-N-Talk: An Affordable Solution to Hearing Loss." Finalist presentation at the 2nd UCSD ECE Annual Design Competition. University of California, San Diego. San Diego, CA.

Teaching

Guest Lectures

2019, 20 "A Crash Course on Statistics for Usability Testing." HCDE Usability Testing, University of Washington.

Directed Research Group

2022 "Evaluative Study on Dataland: Supporting Novices to Analyze Data." University of Washington.

2021, 22 "Supporting Critical Capacities in Data Science through Online Interactions." University of Washington.

Teaching Assistant

2020, 21 HCDE Capstone. University of Washington. *Students won Best Design & Engineering awards*.

2020, 21 HCDE Capstone Project Planning. University of Washington.

2020 HCDE Qualitative Methods. University of Washington.

2019 HCDE Usability Testing. University of Washington.

2019 HCI+D Formative UX Research Studio. University of Washington.

Mentoring

2022–23 Cindy Gong. Undergraduate Honor Thesis.

2019 Ziwen Zeng. Undergraduate summer intern.

2019 Maysnow Liu. Undergraduate summer intern.

Academic Services

2024 Associate Chair, ACM CHI

2024 Associate Chair, ACM DIS

2023 Program Committee, ACM FAccT

2023 Reviewer, ACM TOCE

2023 Reviewer, ACM UIST

2023 Reviewer, ACM Creativity & Cognition

2022, 23 Reviewer, ACM TiiS

2022 Student Ambassador, UW DUB

2020–22 Reviewer, ACM CSCW

2020, 22 Reviewer, ACM IDC

2019, 21 Reviewer, ACM CHI

2021 Workshop Organizer, Connected Learning Summit

2021 Doctoral Colloquium Organizer, UW DUB

2020 Workshop Organizer, Community Data Science

2019 Application Reviewer, UW HCDE Master program