

# Ruijia (Regina) Cheng

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## Research Keywords:

Computational Social Science; Social computing; Human-computer Interaction; Online community; Data science & programming support; Computational literacies; Human-AI collaboration; Trust and reliance in AI; Creativity

## Education

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09/18 – **University of Washington (UW)**

06/23 PhD candidate in Human Centered Design & Engineering (HCDE)

(exp.) Advisors: Benjamin Mako Hill, Jennifer Turns

09/18 – **University of Washington**

03/21 Master of Science in Human Centered Design & Engineering

09/14 – **University of California, San Diego (UCSD)**

03/18 *Magna Cum Laude*

Bachelor of Science in Cognitive Science with a Specialization in Computation

Bachelor of Science in Mathematics: Applied Science

## Academic & Professional Experiences

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09/18 – **Department of Human Centered Design & Engineering, University of Washington**

present *Graduate Research Assistant.*

- Led research projects that used computational and qualitative approaches to understand and design for informal learning of computational skills in online communities [C1, C2], data science collaboration and communication [C6], visual block-based programming systems for data science learning [U3], and creative feedback exchange [C3, C7].

06/22 – **Microsoft Research**

09/22 *PhD Research Intern. Software Analysis and Intelligence in Engineering Systems (SAINTES).*

*Supervisors: Denae Ford, Tom Zimmermann.*

- Led a multi-phase research project (interview, prototyping, and design probe) on how developers build trust with AI-powered code generation tools through participating in socio-technical ecosystems [U1].
- Collaborated in research about responsible design in AI-powered code generation tools [U2].
- Reported to the GitHub Copilot team and contributed user-evaluated design guidelines and visual mockups for AI-powered code generation tools.

09/21– **Dataminr Inc.**

12/21 *PhD Research Intern. HCI/AI.*

*Supervisors: Alison Smith-Renner, Ke Zhang.*

- Led and collaborated in research on human-in-the-loop text summarization [C4, C5, 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.
- Laid the foundation for the design of internal human-AI collaborative text summarization tools.

06/21– **Community Data Science Collective Lab, Northwestern University**

09/21 *Visiting Researcher.*

- Led a large-scale quantitative study on data literacy and social media discussion about COVID-19 [U4].
- Built datasets of cross-platform social media activities about COVID-19.

06/20 – **Meta**

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 – **Design Lab, University of California, San Diego**

12/17 *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

### **Peer-reviewed Conference Proceedings**

- C1. **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%)**
- C2. **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).
- C3. **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).
- C4. **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).
- C5. 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).

- C6. **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).
- C7. **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).

#### **Under Review and In-progress Manuscripts**

- U1. **Cheng, R.**, Wang, R., Zimmermann, T., Ford, D. Online Communities and Trust in AI-powered Code Generation tools. [Title modified to ensure blind review]. 2023. Under submission to the ACM Transactions on Computer-Human Interaction (TOCHI).
- U2. Wang, R., **Cheng, R.**, Ford, D., Zimmermann, T. Responsible Design in AI-powered Code Generation [Title modified to ensure blind review]. 2023. Under submission to the ACM Conference on Fairness, Accountability, and Transparency (FAccT 2023).
- U3. **Cheng, R.**, Dangol, A., Ello, F., Wang, L., Dasgupta, S. Designing a Visual Block-based System for Young People to Learn Data Analysis and Visualization [Title modified to ensure blind review]. 2023. Under submission to the ACM Interaction Design and Children Conference (IDC 2023).
- U4. **Cheng, R.**, Shaw, A., Hill, B. Critical Data Literacies in Twitter Discussion about COVID-19 Vaccines [Title modified to ensure blind review]. 2023. Under submission to the International AAAI Conference on Web and Social Media (ICWSM).

#### **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**

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| 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

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- 2022 “Developer’s Trust in AI-powered Code Generation.” Presentation at Microsoft Research. Webinar.
- 2022 “Supporting Computational Learning in Online Communities.” Speaker at Microsoft MakeCode. Microsoft Research. Webinar.
- 2022 “Understanding and Supporting Informal Learning in Online Communities.” Speaker at The Expertise@scale Salon. Emory University. Webinar.
- 2022 “All Communities Are Learning Communities.” Speaker at The Science of Community Dialogues. Community Data Science Collective. Webinar.
- 2022 “Online Communities and Trust in AI-powered Code Generation tools.” Speaker at Microsoft Research HCI seminar. Microsoft Research. Redmond, WA.
- 2022 “Understanding and Designing for Data Literacies in Online Communities.” PhD dissertation proposal presentation. University of Washington. Webinar.
- 2021 “Data Scientists or Conspiracists: Critical Discourses about COVID Data among Pro- and Anti-vaccine Tweets.” Speaker 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 “Exploring Feedback Requests in an Online Critique Community.” PhD preliminary exam presentation. University of Washington. Seattle, WA.
- 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 2<sup>nd</sup> UCSD ECE Annual Design Competition. University of California, San Diego. San Diego, CA.

## Teaching

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### 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**

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- 2022 Cindy Gong. Undergraduate honor thesis.
- 2022 Frannie Ello. Undergraduate research assistant.
- 2019 Ziwen Zeng. Undergraduate summer intern. *Now graduate student at Carnegie Mellon University.*
- 2019 Maysnow Liu. Undergraduate summer intern.

### **Academic Services**

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- 2022 ACM TiiS reviewer
- 2022 DUB retreat student ambassador
- 2020–22 ACM CSCW reviewer
- 2020, 22 ACM IDC reviewer
- 2021 DUB Doctoral Colloquium organizer
- 2021 ACM CHI reviewer
- 2020 UW Community Data Science Workshop mentor
- 2019, 20 ACM CHI Late Breaking Work reviewer
- 2019 UW HCDE Master program application reviewer