

# Jenny T. Liang

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## Education

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**Carnegie Mellon University**, Pittsburgh, PA, USA 2022 –  
Ph.D. in Software Engineering  
Advisor: Brad A. Myers

**Carnegie Mellon University**, Pittsburgh, PA, USA 2022 – 2024  
M.S. in Software Engineering

**University of Washington**, Seattle, WA, USA 2015 – 2021  
B.S. in Computer Science, B.S. in Informatics

## Publications (\* denotes equal contribution, [Google Scholar](#))

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### Conference Publications

#### [C13] Prompts Are Programs Too! Understanding How Developers Build Software Containing Prompts

Jenny T. Liang, Melissa Lin\*, Nikitha Rao\*, Brad A. Myers

ACM International Conference on the Foundations of Software Engineering (FSE) 2025. Acceptance rate: 22% [\[PDF\]](#)

#### [C12] Particip-AI: Anticipating Future AI Use Cases and Impacts with Lay Users

Jimin Mun, Liwei Jiang, Jenny T. Liang, Inyoung Cheong, Nicole DeCario, Yejin Choi, Tadayoshi Kohno, Maarten Sap

AAAI/ACM Conference on Artificial Intelligence, Ethics and Society (AIES) 2024. Acceptance rate: 32% [\[PDF\]](#)

#### [C11] Can GPT-4 Replicate Empirical Software Engineering Research?

Jenny T. Liang, Carmen Badea, Christian Bird, Robert DeLine, Denae Ford Robinson, Nicole Forsgren, Thomas Zimmermann

ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE) 2024. Acceptance rate: 25% [\[PDF\]](#)

#### [C10] Counterspeakers' Perspectives: Unveiling Barriers and AI Needs in the Fight against Online Hate

Jimin Mun, Cathy Buerger\*, Jenny T. Liang\*, Joshua Garland, Maarten Sap

ACM SIGCHI Conference on Human Factors in Computing Systems (CHI) 2024. Acceptance rate: 26% [\[PDF\]](#)

#### [C9] A Large-Scale Survey on the Usability of AI Programming Assistants: Successes and Challenges

Jenny T. Liang, Chenyang Yang, Brad A. Myers

IEEE/ACM International Conference on Software Engineering (ICSE) 2024. Acceptance rate: 25% [\[PDF\]](#) [\[Data Skeptic Podcast\]](#)

### Outstanding Paper Award

#### [C8] NLPositionality: Characterizing Design Biases of Datasets and Models

Sebastin Santy\*, Jenny T. Liang\*, Ronan Le Bras, Katharina Reinecke, Maarten Sap

Annual Conference of the Association for Computational Linguistics (ACL) 2023. Acceptance rate: 24% [\[PDF\]](#)

[\[MarkTechPost\]](#) [\[CMU ML Blog\]](#)

### ACM SIGSOFT Distinguished Paper Award

#### [C7] A Qualitative Study on the Implementation Design Decisions of Developers

Jenny T. Liang, Maryam Arab, Minhyuk Ko, Amy J. Ko, Thomas D. LaToza

IEEE/ACM International Conference on Software Engineering (ICSE) 2023. Acceptance rate: 26% [\[PDF\]](#) [\[IEEE Software\]](#)

[\[Scholarly Communication Podcast\]](#)

#### [C6] Understanding Skills of OSS Contributors on GitHub

Jenny T. Liang, Thomas Zimmermann, Denae Ford

ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE) 2022. Acceptance rate: 22% [\[PDF\]](#)

**[C5] Towards Mining OSS Skills from GitHub Activity**

Jenny T. Liang, Thomas Zimmermann, Denae Ford  
*IEEE/ACM International Conference on Software Engineering—New Ideas and Emerging Results (ICSE-NIER) 2022*.  
Acceptance rate: 27% [\[PDF\]](#)

**[C4] An Exploratory Study of Sharing Strategic Programming Knowledge**

Maryam Arab, Thomas D. LaToza, Jenny Liang, Amy J. Ko  
*ACM SIGCHI Conference on Human Factors in Computing Systems (CHI) 2022*. Acceptance rate: 26% [\[PDF\]](#)

**[C3] HowToo: A Platform for Sharing, Finding, and Using Programming Strategies**

Maryam Arab, Jenny Liang\*, Yang Yoo\*, Amy J. Ko, Thomas D. LaToza  
*IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) 2021*. Acceptance rate: 30% [\[PDF\]](#)

**[C2] Whale Watching in Inland Indonesia: Analyzing a Small, Remote, Internet-Based Community Cellular Network**

Matthew Johnson, Jenny Liang, Michelle Lin, Sudheesh Singanamalla, Kurtis Heimerl  
*The Web Conference (WWW) 2021*. Acceptance rate: 21% [\[PDF\]](#)

**[C1] Experiences: Design, Implementation, and Deployment of CoLTE, a Community LTE Solution**

Spencer Sevilla, Matthew Johnson, Pathirat Kosakanchit, Jenny Liang, Kurtis Heimerl  
*ACM International Conference on Mobile Computing and Networking (Mobicom) 2019*. Acceptance rate: 19% [\[PDF\]](#)

**Journal Articles**

**[J2] TableTalk: Scaffolding Spreadsheet Development with a Language Agent**

Jenny T. Liang, Aayush Kumar, Yasharth Bajpai, Sumit Gulwani, Vu Le, Chris Parnin, Arjun Radhakrishna, Ashish Tiwari, Emerson Murphy-Hill\*, Gustavo Soares\*  
*ACM Transactions of Human-Computer Interaction (TOCHI)*. [\[PDF\]](#) [\[Ploutus\]](#)

**[J1] An Empirical Investigation of Machines' Capabilities for Moral Judgment with the Delphi Experiment**

Liwei Jiang, Jena D. Hwang, Chandra Bhagavatula\*, Ronan Le Bras\*, Jenny T. Liang\*, Sydney Levine\*, Jesse Dodge, Keisuke Sakaguchi, Maxwell Forbes, Taylor Sorenson, Jonathan Borchardt, Jack Hessel, Saadia Gabriel, Yulia Tsvetkov, Oren Etzioni, Maarten Sap, Regina Rini, Yejin Choi  
*Nature Machine Intelligence*, 2024. Impact factor: 18.8 [\[PDF\]](#) [\[New York Times\]](#) [\[WIRED\]](#) [\[IEEE Spectrum\]](#) [\[Nature\]](#)

**Other Refereed Publications (e.g., demos, posters, extended abstracts)**

**[O2] LLMs as Workers in Human-Computational Algorithms? Replicating Crowdsourcing Pipelines with LLMs**

Tongshuang Wu, Haiyi Zhu, Maya Albayrak, Alexis Axon, Amanda Bertsch, Wenxing Deng, Ziqi Ding, Bill Guo, Sireesh Gururaja, Tzu-Sheng Kuo, Jenny T. Liang, Ryan Liu, Ihita Mandal, Jeremiah Milbauer, Xiaolin Ni, Namrata Padmanabhan, Subhashini Ramkumar, Alexis Sudjianto, Jordan Taylor, Ying-Jui Tseng, Patricia Vaidos, Zhijin Wu, Wei Wu, Chenyang Yang  
*ACM SIGCHI Conference on Human Factors in Computing Systems (CHI) 2025—Case Studies in Practice*. [\[PDF\]](#)

**[O1] An All-in-One Community LTE Network**

Spencer Sevilla, Matthew Johnson, Pathirat Kosakanchit, Jenny Liang, Kurtis Heimerl  
*ACM International Conference on Mobile Computing and Networking (Mobicom) 2019—Demo Track*. [\[PDF\]](#)

**Pre-Prints**

**[P5] AgentBuilder: Exploring Scaffolds for Prototyping User Experiences of Interface Agents**

Jenny T. Liang, Titus Barik, Jeff Nichols, Eldon Schoop, Ruijia Cheng  
*Under submission*.

**[P4] Mapping the Design Space of User Experience for UI Control Agents**

Ruijia Cheng, Jenny T. Liang, Eldon Schoop, Jeff Nichols  
*Under submission*.

**[P3] Understanding Prompt Programming Tasks and Questions**

Jenny T. Liang, Chenyang Yang, Agnia Sergeyuk, Travis Breaux, Brad A. Myers  
*Under submission*. [\[PDF\]](#)

**[P2] EditBench: Evaluating LLM Abilities to Perform Real-World Instructed Code Edits**

Wayne Chi\*, Valerie Chen\*, Ryan Shar, Aditya Mittal, [Jenny T. Liang](#), Wei-Lin Chiang, Anastasios Nikolas Angelopoulos, Ion Stoica, Graham Neubig, Ameet Talwalkar, Chris Donahue

*Under submission.*

**[P1] Navigating Complexity: How Context Shapes Debugging Strategy Choices Among Expert Developers**

Maryam Arab, [Jenny T. Liang](#), Valentina Hong, Thomas D. LaToza

*Under submission.* [\[PDF\]](#)

## Research Experience

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<b>Carnegie Mellon University</b> , Software & Societal Systems Department <i>Graduate Research Assistant</i> , advised by Brad A. Myers	2022 –
<b>Apple</b> , Data & Machine Learning Innovation Team <i>Machine Learning Intern</i> , advised by Ruijia Cheng	Summer 2025
<b>Microsoft</b> , Program Synthesis Using Examples (PROSE) Team <i>Applied Scientist Intern</i> , advised by Gustavo Soares	Summer 2024
<b>Microsoft Research</b> , Software Analysis & Intelligence (SAINTES) Group <i>Research Intern</i> , advised by Thomas Zimmermann, Christian Bird, Carmen Badea, Denae Ford Robinson, Robert DeLine, & Nicole Forsgren	Summer 2023
<b>Allen Institute for Artificial Intelligence</b> , Mosaic Team <i>Predoctoral Young Investigator</i> , advised by Ronan Le Bras & Yejin Choi	2021 – 2022
<b>University of Washington</b> , Information School, Code & Cognition Lab <i>Undergraduate Research Assistant</i> , advised by Amy J. Ko	2020 – 2021
<b>Microsoft Research</b> , Software Analysis & Intelligence (SAINTES) Group <i>Undergraduate Research Intern</i> , advised by Denae Ford Robinson & Thomas Zimmermann	Spring 2021
<b>Allen Institute for Artificial Intelligence</b> , Mosaic Team <i>Undergraduate Research Intern</i> , advised by Swabha Swayamdipta, Chandra Bhagavatula, & Yejin Choi	2020 – 2021
<b>University of Washington</b> , Computer Science & Engineering, Information and Communication Technology for Development (ICTD) Lab <i>Undergraduate Research Assistant</i> , advised by Spencer Sevilla & Kurtis Heimerl	2019 – 2020

## Awards & Honors

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<b>Outstanding Paper Award</b> , Annual Conference of the Association for Computational Linguistics 2023. <i>Awarded to less than 2% of accepted papers / 0.5% of submitted papers.</i>	2023
<b>ACM SIGSOFT Distinguished Paper Award</b> , IEEE/ACM International Conference on Software Engineering 2023. <i>Awarded to less than 5% of accepted papers / 1% of submitted papers.</i>	2023
<b>Ford Fellowship Honorable Mention</b> , Ford Foundation	2023
<b>Graduate Research Fellowship</b> , National Science Foundation (\$111,000 over 3 years)	2021
<b>Outstanding Undergraduate Researcher Honorable Mention</b> , Computing Research Association	2021
<b>Undergraduate Service Award</b> , University of Washington, Computer Science & Engineering. <i>Award to recognize 3 UW CSE undergraduates out of 2,000 students for their outstanding service to the department.</i>	2020

<b>Husky 100, University of Washington.</b> Award to recognize 100 UW students out of 55,000 students in honor of their outstanding contributions to the university.	2020
<b>Outstanding Engineer Award,</b> Allen Institute for Artificial Intelligence (\$12,000)	2020
<b>Denice Dee Denton Scholarship</b> (\$1,000)	2019

## Invited Talks

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<b>Prompts Are Programs Too! Understanding How Developers Build Software Containing Prompts</b> <i>East China Normal University, Shanghai, China</i>	May 2025
<b>Are Prompts Programs?</b> <i>Mila - Quebec Artificial Intelligence Institute, Online</i>	Feb 2025
<b>Software Development in the Era of LLMs: Present and Future</b> <i>JetBrains Research, Online</i>	Sep 2024
<b>Software Development in the Era of LLMs: Present and Future</b> <i>Microsoft, Online</i>	Jul 2024

## Selected Press

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<b>Scholarly Communication Podcast</b> , "Define Clearly, Select Carefully, End Compellingly" <a href="#">[HTML]</a>	Jan 2025
<b>CMU ML Blog</b> , "NLPositionality: Characterizing Design Biases of Datasets and Models" <a href="#">[HTML]</a>	Mar 2024
<b>IEEE Software</b> , "Focusing on Developers in the Era of AI and ML" <a href="#">[HTML]</a>	Nov 2023
<b>Data Skeptic Podcast</b> , "A Survey Assessing Github Copilot" <a href="#">[HTML]</a>	Nov 2023
<b>IEEE Spectrum</b> , "Machines Learn Good From Commonsense Norm Bank" <a href="#">[HTML]</a>	Nov 2021
<b>New York Times</b> , "Can a Machine Learn Morality?" <a href="#">[HTML]</a>	Nov 2021
<b>Nature</b> , "How robots can learn to follow a moral code" <a href="#">[HTML]</a>	Oct 2021
<b>WIRED</b> , "This Program Can Give AI a Sense of Ethics—Sometimes." <a href="#">[HTML]</a>	Oct 2021

## Teaching

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### Guest Lectures

<b>Prompt Programming: Past, Present, and Future</b> , Carnegie Mellon University <i>Prompt Engineering, 17-630</i>	Mar 2025
<b>Human Aspects of AI-Assisted Software Engineering</b> , North Carolina State University <i>Generative AI for Software Engineering, CSC 791-028</i>	Oct 2023

### Teaching Assistantships

<b>Graduate Teaching Assistant</b> , Carnegie Mellon University, Software & Societal Systems Department <i>Foundations of Software Engineering, 17-313</i> . Instructors: Michael Hilton, Eduardo Feo-Flushing	Spring 2024
<b>Undergraduate Teaching Assistant</b> , University of Washington, Computer Science & Engineering <i>Building Academic Success through Bottom-Up Computing (Introduction to Computer Systems), CSE 390B</i> . Instructors: Dan Grossman, Aaron Johnston, Leslie Ikeda	Spring 2020

<b>Undergraduate Teaching Assistant</b> , University of Washington, Computer Science & Engineering <i>Software Design &amp; Implementation, CSE 331</i> . Instructor: Hal Perkins	Winter 2020
<b>Undergraduate Teaching Assistant</b> , University of Washington, Computer Science & Engineering <i>Software Design &amp; Implementation, CSE 331</i> . Instructor: Dan Grossman	Fall 2019
<b>Undergraduate Teaching Assistant</b> , University of Washington, Computer Science & Engineering <i>Introduction to Programming II, CSE 143</i> . Instructor: Hunter Schafer	Winter 2019
<b>Undergraduate Teaching Assistant</b> , University of Washington, Computer Science & Engineering <i>Accelerated Introduction to Programming, CSE 143X</i> . Instructor: Stuart Reges	Fall 2018
<b>Undergraduate Teaching Assistant</b> , University of Washington, Computer Science & Engineering <i>Introduction to Programming II, CSE 143</i> . Instructor: Stuart Reges	Spring 2018

## Mentoring

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<b>Melissa Lin</b> , CMU Undergraduate Student Assisted with research projects on prompt programming. Is an author on a full conference paper in FSE 2025.	2024 –
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## Service

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### Professional Service

Organizer	<i>Organizer</i> , Bi-Align Workshop (2026) <i>Assistant to the Blending Interaction Subcommittee Chairs</i> , CHI (2026) <i>ArXiv Track Co-Chair</i> , ACM Alware (2025) <i>Publicity &amp; Web Chair</i> , ACM Alware (2024) <i>Student Organizer</i> , PLATEAU (2024, 2025)
PC Member	<i>Software Engineering</i> : CHASE (2025), ICSE – Artifact Track (2025) <i>Artificial Intelligence</i> : Bi-Align Workshop (2025), HCI+NLP Workshop (2025)
Reviewer	<i>Software Engineering</i> : CACM (2025), EMSE (2024, 2025), TOSEM (2024, 2025), TSE (2025), IEEE Software (2025) <i>Human-Computer Interaction</i> : <b>UIST (2024*, 2025*)</b> , CHI (2024, 2025), <b>CHI–Late Breaking Work (2025*)</b> <i>Artificial Intelligence</i> : ACL (2025) <b>(* = Outstanding Reviewer Award)</b>
Volunteer	ESEC/FSE (2024), NAACL (2022), Mobicom (2019)

### University Service

Student Leader (Ph.D.)	<i>Student Representative</i> , CMU S3D Ph.D. Admissions Committee (2025) <i>Student Representative</i> , CMU S3D Distinguished Speaker Series Selection Committee (2022, 2023, 2024) <i>Student Representative</i> , CMU Software Engineering Ph.D. Curriculum Committee (2022, 2023) <i>Student Representative</i> , CMU S3D Software Research Seminar Steering Committee (2022, 2023) <i>Student Representative</i> , CMU SCS Dean's Advisory Committee (2022)
Student Leader (Undergrad)	<i>Member</i> , UW CSE Student Advisory Council (2021) <i>Undergraduate Research Leader</i> , UW Undergraduate Research Program (2021) <i>Vice Chair</i> , UW CSE Student Advisory Council (2020) <i>Officer</i> , UW CSE Student Advisory Council (2019)

## Industry Experience

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<b>Uber</b> , Developer Experience, Software Engineer Intern	Fall 2019
<b>Apple</b> , Mail Team, Software Engineer Intern	Summer 2019
<b>Microsoft</b> , Personal Bing, Software Engineer Intern	Spring 2019
<b>Microsoft</b> , Exchange Enterprise Cloud, Software Engineer Intern	Summer 2018
<b>Microsoft</b> , Workplace Analytics, Software Engineer Intern	Summer 2017
<b>Microsoft</b> , Office 365, Intern	Summer 2016