

# Eunice Jun

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## Research Mission

**To bring the power of data to more people** by lowering the barriers to data analysis for statistical non-experts.

Specialization: Human-Computer Interaction  
Other interests: Programming Languages/Software Engineering, Statistics, Data Science  
Current topics: Interactive systems, usable domain-specific languages, automated reasoning, end-user programming

## Education

- 2023 (expected) **University of Washington**  
Ph.D., Computer Science & Engineering  
Committee: Jeffrey Heer (advisor), René Just (advisor), Emery Berger (CS, external), Leilani Battle (CS), Tyler H. McCormick (Statistics)
- 2019 **University of Washington**  
M.S., Computer Science & Engineering  
Advisor: Katharina Reinecke, Secondary reader: Gary Hsieh  
Thesis: *Surfacing and Designing for Participant Learning and Interest in Online Experiments*
- 2016 **Vanderbilt University**  
B.S., Computer Science & Engineering (honors), Cognitive Studies (honors)  
Advisors: Bobby Bodenheimer (computer graphics), John Rieser (psychology)  
Thesis: *Gap and Ledge Affordance Judgments with Training Using the Oculus Rift DK2*

## Publications

### Refereed Conference and Journal Papers with Recognition

\* signifies research mentees

- CHI22 **Eunice Jun**, Audrey Lee Seo\*, Jeffrey Heer, and René Just. Tisane: Authoring statistical models via formal reasoning from conceptual and data relationships. In *Proceedings of the 2022 ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1–16, 2022 **Best Paper Honorable Mention (top 5%)**
- CSCW17 **Eunice Jun**, Gary Hsieh, and Katharina Reinecke. Types of motivation affect study selection, attention, and dropouts in online experiments. *Proceedings of the ACM on Human-Computer Interaction*, 1(CSCW):1–15, 2017 **Best Paper Honorable Mention (top 5%)**
- TAP15 **Eunice Jun**, Jeanine K Stefanucci, Sarah H Creem-Regehr, Michael N Geuss, and William B Thompson. Big foot: Using the size of a virtual foot to scale gap width. *ACM Transactions on Applied Perception (TAP)*, 12(4):1–12, 2015 **Selected for special issue**

### Refereed Conference and Journal Papers

\* signifies research mentees

- HA22 Emily K Johnson, Matthew A Wojtosta, Sawyer W Crosby, Herbert C Duber, **Eunice Jun**, Haley Lescinsky, Phong Nguyen, Maitreyi Sahu, Azalea Thomson, Golsum Tsakalos, et al. Varied health spending growth across US states was associated with incomes, price levels, and Medicaid expansion, 2000–19: Study examines factors associated with health spending growth across the US. *Health Affairs*, 41(8):1088–1097, 2022 **External collaboration using my research tools**

- SCF22 Jasper Tran O’Leary, **Eunice Jun**, and Nadya Peek. Verso: Extending computational notebooks for exploratory digital fabrication. In *ACM Symposium on Computational Fabrication*, 2022. <https://dl.acm.org/doi/10.1145/3559400.3561998>
- TOCHI22 **Eunice Jun**, Melissa Birchfield\*, Nicole De Moura\*, Jeffrey Heer, and René Just. Hypothesis formalization: Empirical findings, software limitations, and design implications. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 29(1):1–28, 2022
- TAC21 Daniel McDuff, **Eunice Jun**, Kael Rowan, and Mary Czerwinski. Longitudinal observational evidence of the impact of emotion regulation strategies on affective expression. *IEEE Transactions on Affective Computing*, 12(3):636–647, 2019
- UIST19 **Eunice Jun**, Maureen Daum, Jared Roesch, Sarah Chasins, Emery Berger, René Just, and Katharina Reinecke. Tea: A high-level language and runtime system for automating statistical analysis. In *Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology*, pages 591–603, 2019
- CSCW19 **Eunice Jun**, Daniel McDuff, and Mary Czerwinski. Circadian rhythms and physiological synchrony: Evidence of the impact of diversity on small group creativity. *Proceedings of the ACM on Human-Computer Interaction*, 3(CSCW):1–22, 2019
- EuroVis19 Yang Liu, **Eunice Jun**, Qisheng Li, and Jeffrey Heer. Latent space cartography: Visual analysis of vector space embeddings. In *Computer Graphics Forum*, volume 38, pages 67–78. Wiley Online Library, 2019
- CSCW18 **Eunice Jun**, Blue A Jo\*, Nigini Oliveira, and Katharina Reinecke. Digestif: Promoting science communication in online experiments. *Proceedings of the ACM on Human-Computer Interaction*, 2(CSCW):1–26, 2018
- L@S18 **Eunice Jun**, Morelle Arian, and Katharina Reinecke. The potential for scientific outreach and learning in Mechanical Turk experiments. In *Proceedings of the Fifth Annual ACM Conference on Learning at Scale*, pages 1–10, 2018
- CHI17 Nigini Oliveira, **Eunice Jun**, and Katharina Reinecke. Citizen science opportunities in volunteer-based online experiments. In *Proceedings of the 2017 ACM Conference on Human Factors in Computing Systems (CHI)*, pages 6800–6812, 2017

## Selected Workshop Papers, Posters, Demos, and Doctoral Symposia

\* signifies research mentees

- UIST22b Jasper Tran O’Leary, **Eunice Jun**, and Nadya Peek. Demonstrating Verso: Extending computational notebooks for exploratory digital fabrication. In *Companion of the 2022 ACM Conference on User Interface Software and Technology (Demo)*, 2022
- UIST22a **Eunice Jun**. Empowering domain experts to author valid statistical analyses. In *Companion of the 2022 ACM Conference on User Interface Software and Technology (Doctoral Symposium)*, 2022
- HDI@VIS21 Melissa Birchfield\* and **Eunice Jun**. Adapting reorderable matrices for qualitative analysis. 2021
- DUB21 **Eunice Jun**. Ensuring valid statistical analyses for domain experts. In *Doctoral Symposium at DUB, University of Washington*, 2021
- PLATEAU20 Josh Pollock\*, Grace Oh\*, **Eunice Jun**, Philip J Guo, and Zachary Tatlock. The essence of program semantics visualizers: A three-axis model. *11th Annual Workshop on the Intersection of HCI and PL (PLATEAU)*, 2020
- PLATEAU19 **Eunice Jun**, Emery Berger, and Ben Zorn. The Scone DSL: Smart sampling for smarter statistics. *10th Annual Workshop on the Intersection of HCI and PL (PLATEAU)*, 2019
- PNWPLSE18 **Eunice Jun**, Jared Roesch, and Sarah Chasins. Experimental design as programs. *Pacific Northwest Programming Languages and Software Engineering (PNW PLSE) Workshop*, 2018
- CHI17 **Eunice Jun**, Bernd Huber, Krzysztof Z Gajos, and Katharina Reinecke. How curiosity attracts participation in volunteer-based online experiments. *Designing for Curiosity Workshop, ACM Conference on Human Factors in Computing Systems (CHI)*, 2017
- CSCW17 Nigini Oliveira, **Eunice Jun**, Trevor Crosson, Krzysztof Z Gajos, and Katharina Reinecke. Labyrinthwild: How to design uncompensated, feedback-driven online experiments. In *Companion of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (Demo)*, pages 25–28, 2017
- GHIC14 **Eunice Jun** and Rachael Grenfell-Dexter. Maníplus: A holistic approach to malnutrition in Guatemala. *Global Health and Innovation Conference*, 2014

## Work in progress

\* signifies research mentees

- TBD<sub>b</sub> Ken Gu\*, **Eunice Jun**, and Tim Althoff. Understanding and supporting debugging workflows in multiverse analysis. *Under submission (manuscript ID 3913)*.  
<https://arxiv.org/abs/2210.03804>
- TBD<sub>a</sub> **Eunice Jun**, Jeffrey Heer, and René Just. rTisane: Empirical evidence of the benefits of formalizing conceptual models to author statistical models. *Work in progress*
- WIP22<sub>b</sub> Rrita Zejnullahi, **Eunice Jun**, and Tyler H. McCormick. Understanding policy makers' cognitive heuristics for making resource allocation decisions. *Work in progress*. OSF  
Preregistration:<https://osf.io/8yhxm>
- WIP22<sub>a</sub> **Eunice Jun**, Sawyer Crosby, and Joe Dieleman. Assessing health disparities. *Work in progress* [External collaboration using my research tools](#)

## Open-source Software

- Cuppa Github organization for Tisane, Tea, and related projects  
<https://github.com/tea-lang-org>
- rTisane High-level domain-specific language and interactive system for authoring generalized linear models and generalized linear mixed-effects models in R  
[tisane-stats.org](https://tisane-stats.org)
- Tisane High-level domain-specific language and interactive system for authoring generalized linear models and generalized linear mixed-effects models in Python  
[tisane-stats.org](https://tisane-stats.org)
- Tea High-level domain-specific language (embedded in Python) for automatically selecting common Null Hypothesis Significance Tests  
[tea-lang.org](https://tea-lang.org)

## Selected Multidisciplinary Collaborations

- 2022-present **External collaborator**.  
Collaborators: Rrita Zejnullahi, Tyler H. McCormick  
Publications: WIP22<sub>b</sub>
- 2021-present **Volunteer Research Collaborator, Domestic Expenditure team at the Institute for Health Metrics and Evaluation**.  
Supervisor: Joseph Dieleman  
Publications: HA22, WIP22<sub>a</sub>
- 2021 **Volunteer Research Collaborator, Malaria Tracking team at the Institute for Health Metrics and Evaluation**.  
Supervisors: Joseph Dieleman, Angela Micah

## Invited Talks and Presentations

- 2022 **Industry Affiliates Meeting, University of Washington**, Seattle, WA, USA  
Tisane: Authoring Statistical Models via Formal Reasoning from Conceptual and Data Relationships
- 2021 **Social Futures Lab, University of Washington**. Host: Amy X. Zhang. Zoom  
Re-imagining the Statistical Analysis Toolchain: Tea and other delicacies for data science
- 2020 **CS 374: Introduction to HCI, KAIST**. Host: Juho Kim. Zoom  
Tea: A High-level Language and Runtime System for Automating Statistical Analysis
- 2020 **Data Science Club, University of Utah**. Zoom  
Tea: A High-level Language and Runtime System for Automating Statistical Analysis
- 2019 **Industry Affiliates Meeting, University of Washington**, Seattle, WA, USA  
Tea: A High-level Language and Runtime System for Automating Statistical Analysis

- 2019 **Machine Learning and Visual Studio team, Microsoft.** Host: Neel Sundaresan. Redmond, WA, USA  
Tea: A High-level Language and Runtime System for Automating Statistical Analysis
- 2019 **Microsoft Research,** Host: Ben Zorn; Redmond, WA, USA  
Tea: A High-level Language and Runtime System for Automating Statistical Analysis
- 2015 **Cognition and Action Department (led by Heinrich Bulthoff), Max Planck Institute for Biological Cybernetics.** Host: Betty Mohler. Tuebingen, Germany  
Virtual Reality & Human-centered Design

## Selected Honors

- 2022 **Madrona Grand Prize Runner-up, Madrona VC**  
Industry research award for potential academic and business impact for Tea and Tisane
- 2022 **Best Paper Honorable Mention** for CHI22
- 2021 **Rising Stars in EECS, MIT**
- 2018-2022 **Graduate Research Fellowship, National Science Foundation**  
Full tuition and \$36,000 stipend for three years
- 2017 **Madrona Grand Prize Winner, Madrona VC**  
Industry research award for potential academic and business impact
- 2017 **Best Paper Honorable Mention** for CSCW17
- 2016-2017 **Wilma Bradley Endowed Fellowship in Computer Science & Engineering, UW CSE**  
Recruitment fellowship for first year of PhD
- 2014-2016 **Ingram Scholarship Program, Vanderbilt University**  
Merit scholarship for leadership and community service, Full tuition and fees
- 2015 **Barry M. Goldwater Scholarship Honorable Mention**
- 2015 **TAP Paper Highlight in Special Issue** for TAP15
- 2013-2014 **Littlejohn Undergraduate Research Fellowship, Vanderbilt University**  
Supported anthropology research experience with Edward Fischer, which led to GHIC14

## Research Mentees

### PhD Students

- 2022 Ken Gu (University of Washington), advised by Tim Althoff  
Co-authored TBDb
- 2021 Audrey Lee Seo (University of Washington), advised by Dan Grossman  
Co-authored CHI22

### M.S. Students

- 2020-2021 Vincent Pun (University of Massachusetts, Amherst). With Anna Fariha, Emery Berger, Peter Hass, Alexandra Meliou  
Explored challenges to usable, interactive sampling techniques
- 2020 Irene Luo (Columbia University, Flat Iron Institute). With Aaron Watters (at Flat Iron Institute)  
Explored and prototyped data visualizations for Tea

### B.S. Students

- 2021-2022 Shreyash Nigam (University of Washington). With Audrey Lee Seo, Jeffrey Heer  
Updating Tea API  
Explored ways to improve Tisane
- 2021-2022 Annie Denton (University of Washington). With Jeffrey Heer  
Surveyed outputs for statistical tests, improved Tea outputs
- 2021-2022 Reiden Chea (University of Washington). With Jeffrey Heer  
Surveyed outputs for statistical tests, improved Tea outputs  
Created a GUI for Tea
- 2019-2021 Melissa Birchfield (University of Washington). With René Just

- Honors thesis: *Understanding the Role of Data in Cross-Sector Collaboration to Combat Human Trafficking*  
 Co-authored HDI@VIS21, TOCHI22
- 2021 Corinne Herzog (University of Washington). With Jeffrey Heer  
 Explored ways to revise Tea's constraint system to allow for user-defined soft constraints
- 2019-2020 Josh M. Pollock (University of Washington, now PhD student at MIT). With Zachary Tatlock  
 Honors thesis: *Sidewinder: A dynamic program semantics visualization framework*  
 Co-authored PLATEAU20
- 2020 Pranav Rajan (University of Utah)  
 Explored and prototyped data visualizations for Tea
- 2016-2018 Blue A. Jo (University of Washington). With Katharina Reinecke  
 Co-authored CSCW18
- High School Students
- 2020 Nicole de Moura (now B.S. student at University of Washington)  
 Co-authored TOCHI22
- 2020 Grace Oh (now B.S. student at Princeton University). With Josh Pollock, Zachary Tatlock  
 Co-authored PLATEAU20

## Teaching

- Nov. 2022 Guest lecturer, **Introduction to HCI (undergraduate)**. Instructor: Ravi Karkar. University of Massachusetts, Amherst.  
 Lecture on *Experimental design and statistical analysis* (40 minutes, approx. 60 undergraduate students)
- Feb. 2022 Guest lecturer, **Introduction to HCI (graduate)**. Instructor: James Fogarty. University of Washington.  
 Lecture on *Programming as Interaction: Analysis authoring tools for statistical non-experts* (80 minutes, approx. 50 graduate students)  
 Introduced research at the intersection of programming languages and human-computer interaction; used my research as a case study for need-finding, theory building, and tool development at the intersection
- Feb. 2022 Guest lecturer, **Introduction to HCI (graduate)**. Instructor: James Fogarty. University of Washington.  
 Lecture on *Experimental design and statistical analysis* (80 minutes, approx. 50 graduate students)  
 Introduced key concepts related to validity, study design, NHST, and linear modeling, with three learning goals:  
 (i) grow an understanding of experimental design and statistical analysis terminology  
 (ii) identify practical considerations for the application of experimental design and statistical methodology  
 (iii) develop a cognitive framework for approaching and reasoning through knowledge and gaps in knowledge (how to ask for help!)
- Jan. 2021 Guest lecturer, **MIT HCI Community of Research Workshop**. Zoom.  
*Stats crash course: Not your traditional intro to experimental design and NHST*. (2 hours)  
 Taught building blocks of validity, experimental design, and NHST, with two learning goals:  
 (i) defining terminology and principles behind experimental design and statistical analysis  
 (ii) application of experimental design and statistical methodology with an emphasis on practical considerations
- Winter 2020 Teaching Assistant, **Data visualization (undergraduate)**. Instructor: Matthew Conlen.  
 University of Washington.  
 Graduate TA for a project-based data visualization course for approx. 120 undergraduates in 30 project groups
- Jan. 2020 Mentor, **Community Data Science Workshop**.  
 Co-led session on Twitter API usage and help session about data scraping questions.

- Helped workshop attendees (from greater Seattle community) learn Python programming for data scraping, analysis, and visualization
- Winter 2017 Teaching Assistant, **Introduction to HCI (undergraduate)**. Instructor: James Fogarty. University of Washington.
- Graduate TA for a project-based introductory course on HCI methods and topics for approx. 50 undergraduates in 16 project groups

## Selected Formal Mentorship and Outreach

- 2017-2020 **Co-organizer**, UW CSE Annual Women's Research Day
- 2017-2019 **UW CSE Graduate Student Mentor**  
Ongoing mentorship of two to three PhD students per year
- 2017-2018 **Coordinator**, ACM-W Undergraduate Student Mentorship Program  
Connect undergraduate and graduate women through ongoing mentorship and regular events
- 2016-2018 **Mentor**, ACM-W Undergraduate Student Mentor
- 2015-2016 **Founding Organizer**, Girls Who Code at John Early Middle Prep, Nashville, TN

## Professional Activities

### Organizing Committee

- 2021 ACM UIST Diversity Co-chair
- 2020 ACM UIST Proceedings Co-chair
- 2019 ACM Creativity & Cognition (C&C) SV Co-chair

### Departmental and University Service

- 2021 HCI area student co-chair for PhD admissions
- 2020-2021 PhD application reader
- 2020 Panelist, PhD visit days
- 2020, 2017 Women's reception committee, PhD visit days
- 2018-2020 UW Design, Use, Build (DUB) Seminar student coordinator (focus: diversity)

### Reviewing

Conferences: ACM CHI: 2019-2023; ACM UIST: 2019-2021; ACM CSCW: 2018, 2020, 2021; IEEE VIS: 2021; ACM DIS: 2017-2018

Symposia: ACM SCF 2022

Journals: *Journal of Artificial Intelligence Research* (JAIR): 2017

## Professional Experience

### Industry Research

- 2019 **Microsoft Research**, Graduate Research Intern  
Advisors: Ben Zorn, Emery Berger. Group: RiSE  
Publication: PLATEAU20
- 2018 **Microsoft Research**, Graduate Research Intern  
Advisors: Daniel McDuff, Mary Czerwinski. Group: HUE (previously VIBE)  
Publications: CSCW19, TAC21

### Academic Research

- 2016-present **University of Washington**, Graduate Researcher
- 2014-2016 **Learning in Virtual Environments Lab, Vanderbilt University**, Undergraduate Researcher  
Advisors: Bobby Bodenheimer (CS), John Rieser (Psychology)
- Jan.-Sept. 2015 **University of College Dublin**, Undergraduate Research Intern  
Advisors: David Coyle, Ed Curry

- Funding: Ingram Scholarship  
Summer 2014 **University of Utah**, NSF REU Intern  
Advisors: Bill Thompson (CS), Sarah Creem-Regehr (Psychology), Jeanine Stefanucci (Psychology)  
Publication: TAP15
- 2013-2014 **Center for Latin American Studies, Vanderbilt University**, Undergraduate Researcher  
Advisor: Edward Fischer (Anthropology)  
Funding: Littlejohn Undergraduate Research Fellowship  
Publication: GHIC14
- Art and Design
- 2015 **Tunneling Light Exhibition, University College Dublin**, Contributing Artist  
Piece: *Colored Light* (multimedia)  
Organizers: Emer O'Boyle, Lorraine Hanlon
- 2013 **The Curbside Chronicle**, Graphic Designer

## References

**Jeffrey Heer** (advisor)  
Jerre D. Noe Endowed Professor  
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