# Alex Kale

data visualization • uncertainty • data cognition • HCI
kalea@uw.edu • 509-432-6948 • students.washington.edu/kalea/

## Experience

| | |
|---|---|
| 2022 – present | Assistant Professor, University of Chicago<br>Department of Computer Science & Data Science Institute |
| Summer 2021 | Research Intern, Microsoft Research<br>Interpret ML team<br>Supervisor: Rich Caruana • rcaruana@microsoft.com |
| 2020 – 2022 | Visiting Scholar, Northwestern University<br>MU Collective<br>Supervisor: Jessica Hullman • jhullman@northwestern.edu |
| 2017 – 2022 | Research Assistant, University of Washington<br>MU Collective & Interactive Data Lab<br>Supervisor: Jessica Hullman • jhullman@northwestern.edu |
| 2015 – 2017 | Research Assistant, University of Washington<br>Vision-Cognition Lab<br>Supervisor: Scott Murray - somurray@uw.edu |

## Education

| | |
|---|---|
| 2017 – 2022 | University of Washington, Ph.D. in Information Science<br>Advisor: Jessica Hullman • jhullman@northwestern.edu |
| 2017 – 2020 | University of Washington, M.S. in Information Science (GPA: 4.0) |
| 2011 – 2015 | University of Washington, B.S. in Psychology with Honors<br>Minors in Music and Philosophy, Magna Cum Laude (GPA: 3.95)<br>Advisor: Steve Buck • sbuck@uw.edu |
| 2007 – 2011 | Pullman High School, Valedictorian (GPA: 4.0) |

## Honors and Awards

| | |
|---|---|
| 2021 | Honorable Mention Paper Award, IEEE VIS conference |
| 2020 | InfoVis Best Paper Award, IEEE VIS conference |
| 2018 | NSF Graduate Research Fellowship Program Honorable Mention |
| 2017 | Top Scholar Award, UW Graduate School |
| 2015 | Dean's Medal Nominee, UW |

| 2015 | Gonfalonier, banner carrier at UW Commencement |
| 2014 – present | Phi Beta Kappa |
| 2014 | Guthrie Prize for Meritorious Writing in Psychology, UW |
| 2011 – 2015 | Dean's List, UW (every quarter of undergraduate) |

## Publications

### *Computer Science Conference Papers*

**Kale, A.**, Wu, Y., Hullman, J. (2021). Causal Support: Modeling Causal Inferences with Visualizations. *IEEE Trans. Visualization & Comp. Graphics (Proc. VIS), 28 (1).* doi: xx.xxxx/TVCG.201x.xxxxxxx **Honorable Mention Award.**

**Kale, A.**, Kay, M., Hullman, J. (2020). Visual Reasoning Strategies for Effect Size Judgments and Decisions. *IEEE Trans. Visualization & Comp. Graphics (Proc. InfoVis), 27 (1).* doi: xx.xxxx/TVCG.201x.xxxxxxx **Best Paper Award.**

Liu, Y., **Kale, A.**, Altoff, T., Heer J. (2020). Boba: Authoring and Visualizing Multiverse Analyses. *IEEE Trans. Visualization & Comp. Graphics (Proc. InfoVis), 27 (1).* doi: 10.1109/TVCG.2020.3028985

**Kale, A.**, Kay, M., Hullman, J. (2019). Decision-Making Under Uncertainty in Research Synthesis: Designing for the Garden of Forking Paths. *ACM Conference on Human Factors in Computing Systems (Proc. CHI).* doi: 10.1145/3290605.3300432

Conlen, M., **Kale, A.**, Heer, J. (2019). Capture & Analysis of Active Reading Behaviors for Interactive Articles on the Web. *Eurographics Conference on Visualization (EuroVis), 38 (3).* http://idl.cs.washington.edu/papers/idyll-analytics

**Kale, A.**, Nguyen, F., Kay, M., Hullman, J. (2019). Hypothetical Outcome Plots Help Untrained Observers Judge Trends in Ambiguous Data. *IEEE Trans. Visualization & Comp. Graphics (Proc. InfoVis), 25 (1).* doi: 10.1109/TVCG.2018.2864909

Hullman, J., Qiao, X., Correll, M., **Kale, A.**, Kay M. (2019). In Pursuit of Error: A Survey of Uncertainty Visualization Evaluation. *IEEE Trans. Visualization & Comp. Graphics (Proc. InfoVis), 25 (1).* P 903-913. doi: 10.1109/TVCG.2018.2864889

### *Workshop Papers*

**Kale, A.**, Hullman, J (2019). Adaptation and Learning Priors in Visual Inference, Position Paper. *VisxVision Workshop at IEEE VIS 2019.*

### *Psychology Journal Articles*

Schallmo M-P., Kolodny T., **Kale A.M.**, Millin R., Flevaris A.V., Edden R.A.E., Gerdts J., Bernier R.A., Murray S.O. (2020). Weaker neural suppression in autism. *Nature Communications, 11 (1)*, 2675.

Schallmo M-P., **Kale A.M.**, Murray S.O. (2019). The time course of different surround suppression mechanisms. *Journal of Vision, 19 (4)*, 12.

Schallmo, M-P., Millin, R., **Kale, A.M.**, Kolodny, T., Edden, R.A.E., Bernier, R.A., Murray, S.O. (2019). Glutamatergic facilitation of neural responses in MT enhances motion perception in humans. *NeuroImage, 184*, 925-931. doi: 10.1101/283994

Millin, R., Kolodny, T., Flevaris, A.V., **Kale, A.M.**, Schallmo, M-P, Gerdts, J., Bernier, R.A., Murray, S. (2018). Reduced auditory cortical adaptation in autism spectrum disorder. *eLife Neuroscience.* doi: 10.7554/eLife.36493

Murray, S.O., Schallmo, M-P, Kolodny, T., Millin, R., **Kale, A.M.**, Thomas, P., Rammsayer, T.H., Troche, S.J., Bernier, R.A., Tadin, D. (2018). Sex Differences in Visual Motion Processing. *Current Biology, 28 (17)*, 2794-2799. doi: 10.1016/j.cub.2018.06.014

Schallmo, M-P., **Kale, A.M.**, Millin, R., Flevaris, A.V., Brkanac, Z., Edden, R.AE., Bernier, R.A., & Murray, S.O. (2018). Suppression and facilitation of human neural responses. *eLife Neuroscience.* doi: 10.7554/eLife.30334

Vincent, J., **Kale, A.**, & Buck, S. (2016). Luminance dependent long-term chromatic adaptation. *Journal of the Optical Society of America A, 33(3)*, A164-A169. doi: 10.1364/JOSAA.33.00A164

## Invited Talks

"Using Boba to Author and Visualize Multiverse Analyses" Society for Improving Psychological Science (SIPS). June 2022.

"Scientific Visual Data Analysis." Applied Research Consortium, UW College of Built Environments. May 2021.

"Expect Users to Satisfice: Designing Interfaces for Reasoning with Uncertainty." Symposium on Data Science and Statistics, ASA. June 2020.

"Visualizing Uncertainty." Interactive Data Visualization, UW Computer Science and Engineering. Feb 2020.

"Color and Perception in Data Visualization." Interactive Information Visualization, UW Information School. Oct 2018, May 2019.

## Teaching

*University of Chicago*, Chicago, IL.
**Instructor of record.**
• CMSC 14100: Computer Science 1. Fall 2022.

*University of Washington*, Seattle, WA.
**Graduate student volunteer leader.**
• CSE 590H: Interactive Systems Seminar. Academic year 2019 – 2020.

**Graduate student teaching assistant.**
• INFO 474: Interactive Information Visualization. Spring 2019.
• INFO 180: Introduction to Data Science. Fall 2018.

**Undergraduate student teaching assistant.**
• PSYCH 317: Introduction to Probability and Statistics for Psychology. Fall 2014.
• PSYCH 318: Statistical Inference in Psychological Research. Winter 2015.

## Mentoring

PI for summer interns. Gabriela Ayala. Master's student, University of Chicago Computational Analysis and Public Policy. Redon Kurti, Master's student, University of Chicago Master's Program in Computer Science. Harper Schwab, Undergraduate student, University of Chicago Data Science.

Informal research advising. Priyanka Nanayakkara. Ph.D. student, Northwestern University Technology & Social Behavior.

Informal research advising. Abhraneel Sarma. Ph.D. student, Northwestern University Computer Science.

Informal research advising. Phoebe Moh. Ph.D. student, University of Maryland Computer Science.

Project-based mentorship. Emily Qiao. Former Masters student, Northwestern University Computer Science.

Project-based mentorship. Francis Nguyen. Former Undergraduate student, University of Washington Information School.

## Service

I review about ten papers per year for IEEE VIS, IEEE EuroVis, ACM CHI, Journal of Vision, and other publication venues. My reviews have been recognized for being extremely thorough and constructive. E.g., one of my recent reviews for Journal of Vision was recognized by the Editorial Board as an "Exceptionally Good Review", a formal distinction given to only a few of the most thoughtful, expert, and helpful reviews.