

# Abhraneel Sarma

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abhsarma.github.io

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## Research Interests

**Broadly:** I am interested in studying how people make sense of uncertainty information which arise in a typical data analysis pipeline.

**Recently:** I have developed tools which help analysts to specify the uncertainty in their data analysis process itself (the *multiverse* R library), visualise the results of such *specification* uncertainty, and conducted studies to understand how users interpret uncertainty information in missing data contexts, and how we can improve decision making in exploratory data analysis to account for multiple comparisons.

## Education

- 2019- **PhD, Computer Science, Northwestern University**  
Advisor: Jessica Hullman, Matthew Kay
- 2016-2018 **Master of Science, Information, University of Michigan**  
HCI and Data Science specialization  
Advisor: Matthew Kay
- 2012-2016 **Bachelors in Design, Indian Institute of Technology Guwahati**  
Minor in Mechanical Engineering

## Awards and Honors

### Papers

- 2023 **Best Paper Honorable Mention** for “multiverse ...”, ACM CHI
- 2022 **Best Paper Honorable Mention** for “Evaluating the use of ...”, IEEE VIS
- 2019 **Best Paper Award** for “Increasing the Transparency of ...”, ACM CHI

### Other Activities

- 2021-2024 **Special Recognitions for Outstanding Reviews** (three), ACM CHI

## Publications

### Peer-reviewed Full-length Conference and Journal Articles

- C7 2024 **Odds and Insights: Decision Quality in Exploratory Data Analysis Under Uncertainty**  
*Abhraneel Sarma*, Xiaoying Pu, Yuan Cui, Eli T Brown, Michael Correll and Matthew Kay

Proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI)

- C6 2024 **Milliways: Taming Multiverses through Principled Evaluation of Data Analysis Paths**  
*Abhraneel Sarma*, Kyle Hwang, Jessica Hullman and Matthew Kay  
Proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI)
- C5 2023 **multiverse: Multiplexing Alternative Data Analyses in R Notebooks**  
*Abhraneel Sarma*, Alex Kale, Michael Moon, Nathan Taback, Fanny Chevalier, Jessica Hullman and Matthew Kay  
Proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI)  
**Best Paper Honorable Mention**
- C4 2022 **Evaluating the Use of Uncertainty Visualisations for Imputations of Data Missing At Random in Scatterplots**  
*Abhraneel Sarma*, Shunan Guo, Jane Hoffswell, Ryan Rossi, Fan Du, Eunye Koh and Matthew Kay  
IEEE Transactions on Visualization and Computer Graphics (proc. VIS 2022)  
**Best Paper Honorable Mention**
- C3 2022 **An automated approach to reasoning about task-oriented insights in responsive visualization**  
Hyeok Kim, Ryan Rossi, *Abhraneel Sarma*, Dominick Moritz, Jessica Hullman  
IEEE Transactions on Visualization and Computer Graphics (proc. VIS 2021)
- C2 2020 **Prior Setting in Practice: Strategies and Rationales Used in Choosing Prior Distributions for Bayesian Analysis**  
*Abhraneel Sarma* and Matthew Kay  
Proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI)
- C1 2019 **Increasing the Transparency of Research Papers with Explorable Multiverse Analyses**  
Pierre Dragicevic, Yvonne Jansen, *Abhraneel Sarma*, Matthew Kay, and Fanny Chevalier  
Proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI)  
**Best Paper Award**

## Preprints and Manuscripts

- P1 2024 **The multiverse of universes: A tutorial to plan, execute, and interpret multiverses analyses using the R package multiverse** (*In Review*)  
Martin Götz, *Abhraneel Sarma*, Ernest O’Boyle

## Workshops and Lightly-Reviewed Articles

- W1 2019 **Interactive Visualizations Tools for Prior Setting In Bayesian Analysis: Challenges For Evaluation**  
*Abhraneel Sarma* and Matthew Kay

## Work Experience

- 2023     **Research Intern**  
Microsoft Corp.  
Mentors: Jake Hoffman, Dan Goldstein
  
- 2021     **Research Intern**  
Adobe, Inc  
Mentor: Shunan Guo
  
- 2019-     **Graduate Research Assistant**  
MUCollective, Northwestern University
  
- 2016-2019     **Graduate Research Assistant (full time, May 2018 onwards)**  
MUCollective, University of Michigan
  
- 2017     **User Experience Intern**  
Office of Academic Innovation, University of Michigan
  
- 2015     **Undergraduate Research Intern**  
Keio-NUS CUTE Center, National University of Singapore

## Teaching

### Conference Courses

- 2022, 2023     **Transparent Practices for Quantitative Empirical Research**  
Co-instructors: Chat Wacharamanatham, Fumeng Yang, Xiaoying Pu, Lace Padilla, Maryam Hedayati (this is a lecture series with rolling instructors).  
ACM CHI 2022 (online); 22 attendees  
ACM CHI 2023 (hybrid); 6 attendees  
IEEE VIS 2023 (in-person); 8 attendees

### Teaching Assistantship

- 2020     **Teaching Assistant, JOUR377 Data Analysis and Visualization**  
Northwestern University
  
- 2018     **Graduate Student Instructor, SI330 Data Manipulation in Python**  
University of Michigan
  
- 2017     **Graduate Student Instructor, SI588 Fundamentals of Human Behavior**  
University of Michigan

## Mentoring

- 2021-23 **Kyle Hwang**, undergraduate student at Northwestern University for “Milliways ...”
- 2022 **Philip Clement**, undergraduate student at Northwestern University for “Milliways ...”

## Service

### as a reviewer (for conferences)

- 2023 IEEE Transactions on Visualization and Computer Graphics (TVCG)
- 2022 Workshop on TRust and EXpertise in Visualization (TREX VIS)
- 2021-23 IEEE Visualization and Visual Analytics Conference (VIS)
- 2021-24 The ACM CHI Conference on Human Factors in Computing Systems (CHI)

### as a student volunteer

- 2018 IEEE Visualization and Visual Analytics Conference (VIS), Berlin, Germany
- 2017 IEEE Visualization and Visual Analytics Conference (VIS), Phoenix, AZ, USA

## Invited Talks

- 2019 **Statistics and Scientific reporting: Can we do better?**  
Data Camp at the University of Michigan