

# JooYoung Seo

PH.D.

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*I am a learning scientist, data-science/software developer, and internationally certified accessibility professional.*

## Education

### The Pennsylvania State University

University Park, PA

PH.D. IN LEARNING, DESIGN, AND TECHNOLOGY

2021

- Dissertation Title: "Discovering Informal Learning Cultures of Blind Individuals Pursuing STEM Disciplines: A Computational Ethnography Using Public Listserv Archives."
- Committee members: Drs. Gabriela T. Richard (adviser; dissertation chair), Roy B. Clariana, ChanMin Kim, and Mary Beth Rosson.

### The Pennsylvania State University

University Park, PA

M.ED. IN LEARNING, DESIGN, AND TECHNOLOGY

2016

### Sungkyunkwan University

Seoul, South Korea

DOUBLE B.A. IN EDUCATION, ENGLISH LITERATURE

2014

## Professional Appointment

### School of Information Sciences

University of Illinois at

Urbana-Champaign

ASSISTANT PROFESSOR

Sep. 2021 - Present

### National Center for Supercomputing Applications

University of Illinois at

Urbana-Champaign

FACULTY AFFILIATE

Dec. 2021 - Present

### Illinois Informatics Institute

University of Illinois at

Urbana-Champaign

FACULTY AFFILIATE

Sep. 2021 - Present

### IDEA (Inclusion, Diversity, Equity, and Access) Institute

University of Illinois at

Urbana-Champaign

FACULTY AFFILIATE

Jan. 2022 - Present

### Rehabilitation Engineering Research Center (RERC) on Blindness and Low Vision

Smith-Kettlewell Eye Research

Institute

AFFILIATE SCIENTIST

Jul. 2023 - Present

### RStudio

Boston, MA

SOFTWARE ENGINEER INTERN

May. 2020 - Aug. 2020

## Grants

### AWARDED GRANTS

- "Beyond Visuals: Improving Accessibility of Data Curation and Multi-Modal Representations for People of all Abilities through Reproducible Workflows," PI, Institute of Museum and Library Services (IMLS) Laura Bush 21st Century Librarian Program, Grant #RE-254891-OLS-23, \$649,921, Aug 2023 - July 2026 (ongoing).
- "Promoting Computational Thinking Skills for Blind and Visually Impaired Teens through Accessible Library Makerspaces," PI, Institute of Museum and Library Services (IMLS) National Leadership Grants, Grant #LG-252360-OLS-22, \$498,638, Aug 2022 - May 2025 (ongoing).
- "Inclusive Data Science: Fostering Accessibility and Reproducibility with Multimodal Learning Strategies," PI, Teach Access Faculty Grants, Tier 3, \$5,000, May 2023 - May 2024 (ongoing).

- “Improving Accessible Reproducibility for Data Science Publishing System,” PI, Posit PBC (unrestricted gift), \$54,327, May 2022 - Present (ongoing).
- “Co-designing an Alexa-Based Conversational mHealth System with Visually Impaired People to Promote Physical Activities,” Co-PI, Center on Health, Aging, and Disability’s (CHAD) Pilot Grant Program at the University of Illinois at Urbana-Champaign, \$29,866, 2023-2024 (ongoing).
- “Category I: Crossing the Divide Between Today’s Practice and Tomorrow’s Science,” Senior Personnel, National Science Foundation (NSF), Grant #2005572, \$10,000,000.00, Oct 2021 - Sept 30, 2026 (.5 FTE academic year) (ongoing).
- “Insight without Sight: Enhancing Data Literacy through Multimodal Data Science Education - Smith-Kettlewell Summer Institute,” Subaward PI, Rehabilitation Engineering Research Centers (RERC) Program: RERC on Blindness and Low Vision, National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), Grant #90REGE0018-01-00, \$11,975, July 17, 2023 - August 11, 2023 (completed).
- “Data Accessibilization: Making Data Science Education Accessible for Blind Learners,” PI, Wallace Foundation, Emerging Scholars Program, International Society of the Learning Sciences, \$10,000, Jan 2022 - Dec 2022 (completed).

## UNDER-REVIEW GRANTS

- “Collaborative Research: SpatioTemporal Representations for Information and Data Equity: An Interactive AudioTactile System for BVI Data Scientists,” PI (at UIUC), National Science Foundation (NSF), Workplace Equity for Persons with Disabilities in STEM and STEM Education (nsf23593), \$573,548 (for UIUC) out of \$1,499,917 total, July 2024 - June 2028 (under review).

## Publications

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- The following notations only apply to September 2021 and after.

#: derived from the candidate’s thesis.

\*: publication that has undergone stringent editorial review by peers.

+: publication that was invited and carries special prestige and recognition.

## REFEREED JOURNAL PAPERS

1. \* Lee, J. G. W., Lee, K., Lee, B., Choi, S., **Seo, J.**, & Choe, E. K. (2023). Personal Health Data Tracking by Blind and Low-Vision People: Survey Study. *Journal of Medical Internet Research*, 25(1), e43917. <https://doi.org/10.2196/43917>
2. \* Moon, J., Choi, G. W., & **Seo, J. Y.** (2023). Revisiting multimedia learning design principles in virtual reality-based learning environments for autistic individuals. *Virtual Reality*. <https://doi.org/10.1007/s10055-023-00856-2>
3. \* Moon, J., Lee, D., Choi, G. W., **Seo, J.**, Do, J., & Lim, T. (2023). Learning analytics in seamless learning environments: A systematic review. *Interactive Learning Environments*, 0(0), 1–18. <https://doi.org/10.1080/10494820.2023.2170422>
4. \* **Seo, J.**, & Dogucu, M. (2023). Teaching Visual Accessibility in Introductory Data Science Classes with Multi-Modal Data Representations. *Journal of Data Science*, 1–14. <https://doi.org/10.6339/23-JDS1095>
5. \* **Seo, J.**, & Choi, S. (2022). Are blind people considered a part of scientific knowledge producers?: Accessibility report on top-10 SCIE journal systems using a tripartite evaluation approach. *Journal on Technology and Persons with Disabilities*.
6. \* **Seo, J.**, Moon, J., Choi, G. W., & Do, J. (2022). A Scoping Review of Three Computational Approaches to Ethnographic Research in Digital Learning Environments. *TechTrends*, 66(1), 102–111. <https://doi.org/10.1007/s11528-021-00689-3>
7. Choi, S., & **Seo, J.** (2021). Trends in healthcare research on visual impairment and blindness: Use of bibliometrics and hierarchical cluster analysis. *Ophthalmic Epidemiology*, 28(4), 277–284. <https://doi.org/10.1080/09286586.2020.1863993>
8. \* **Seo, J.**, & Richard, G. T. (2021). SCAFFOLDing All Abilities into Makerspaces: A Design Framework for Universal, Accessible and Intersectionally Inclusive Making and Learning. *Information and Learning Sciences*, 122(11/12), 795–815. <https://doi.org/10.1108/ILS-10-2020-0230>

9. **Seo, J.** (2019). Is the maker movement inclusive of ANYONE?: Three accessibility considerations to invite blind makers to the making world. *TechTrends*, 63(5), 514–520. <https://doi.org/10.1007/s11528-019-00377-3>
10. **Seo, J.,** & McCurry, S. (2019). LaTeX is NOT easy: Creating accessible scientific documents with r markdown. *Journal on Technology and Persons with Disabilities*, 7, 157–171.

#### PAPERS IN REFEREED CONFERENCE PROCEEDINGS

- 1.\* Kaushik, S., Barbosa, N. M., Yu, Y., Sharma, T., Kilhoffer, Z., **Seo, J.**, Das, S., & Wang, Y. (2023). GuardLens: Supporting safer online browsing for people with visual impairments. *Nineteenth Symposium on Usable Privacy and Security (SOUPS 2023)*, 361–380. <https://www.usenix.org/conference/soups2023/presentation/kaushik>
- 2.\* Kim, S. H., Yoon, A., & **Seo, J.** (2023). Trend of Collaboration in STEM Education in Informal Learning Institutions Based on IMLS-funded Projects. *Proceedings of the Association for Information Science and Technology*, 60(1), 625–629. <https://doi.org/10.1002/pra2.828>
- 3.\* Park, J., **Seo, J.**, & Lee, J. Y. (2023). Exploring an Online Community of Blind Programmers by Using Topic Modeling and Network Analysis. *Proceedings of the Association for Information Science and Technology*, 60(1), 1096–1098. <https://doi.org/10.1002/pra2.956>
- 4.\* **Seo, J.**, & Rogge, M. (2023). Coding Non-Visually in Visual Studio Code: Collaboration Towards Accessible Development Environment for Blind Programmers. *Proceedings of the 25th International ACM SIGACCESS Conference on Computers and Accessibility*, 1–9. <https://doi.org/10.1145/3597638.3614550>
- 5.\* **Seo, J.**, Xia, Y., Yam, Y. J., & McCurry, S. (2023). MAIDR: Multimodal Access and Interactive Data Representation System for Inclusive Data Science Education. *Proceedings of the 3rd Annual Meeting of the International Society of the Learning Sciences*, 51–54.
- 6.\* Zhang, Z. (Jerry)., Kaushik, S., **Seo, J.**, Yuan, H., Das, S., Findlater, L., Gurari, D., Stangl, A., & Wang, Y. (2023). ImageAlly: A Human-AI hybrid approach to support blind people in detecting and redacting private image content. *Nineteenth Symposium on Usable Privacy and Security (SOUPS 2023)*, 417–436. <https://www.usenix.org/conference/soups2023/presentation/zhang>
- 7.\* Huh, M., & **Seo, J.** (2022). A duoethnographic study of a mixed-ability team in a collaborative group programming project. In A. Weinberger, W. Chen, D. Hernández-Leo, & B. Chen (Eds.), *Proceedings of the 15th international conference on computer-supported collaborative learning - CSCL 2022* (pp. 471–474). International Society of the Learning Sciences.
- 8.\* Lee, C. Y. P., Zhang, Z., Herskovitz, J., **Seo, J.**, & Guo, A. (2022). CollabAlly: Accessible Collaboration Awareness in Document Editing. *CHI Conference on Human Factors in Computing Systems*, 1–17. <https://doi.org/10.1145/3491102.3517635>. Honorable mention award.
- 9.\* **Seo, J.**, & Dogucu, M. (2022). Teaching visual accessibility in the introductory data science classes: Why, what, when, and how. *The 2022 Symposium on Data Science & Statistics*.
- 10.\* Lee, C. Y. P., Zhang, Z., Herskovitz, J., **Seo, J.**, & Guo, A. (2021). CollabAlly: Accessible collaboration awareness in document editing. *The 23rd International ACM SIGACCESS Conference on Computers and Accessibility*, 1–4. <https://doi.org/10.1145/3441852.3476562>
11. **Seo, J.**, & Richard, G. T. (2020). Coding through touch: Exploring and re-designing tactile making activities with learners with visual dis/abilities. In M. Gresalfi & I. Horn (Eds.), *Interdisciplinarity in the learning sciences, 14th international conference of the learning sciences (ICLS) 2020* (Vol. 3, pp. 1373–1380). International Society of the Learning Sciences (ISLS).
12. **Seo, J.** (2019). Discovering informal learning cultures of blind individuals pursuing STEM disciplines: A quantitative ethnography using listserv archives. *The First International Conference on Quantitative Ethnography: Doctoral Consortium*, S66–S67. Awarded the best Doctoral Consortium Proposal Cengage fellowship.
13. **Seo, J.** (2018). Accessibility and inclusivity in making: Engaging learners with all abilities in making activities. In *Proceedings of the 3rd learning sciences graduate student conference* (pp. 141–142). LSGSC Planning Team.
14. **Seo, J.**, & Richard, G. T. (2018). Accessibility, making and tactile robotics: Facilitating collaborative learning and computational thinking for learners with visual impairments. In J. Kay & R. Luckin (Eds.), *Rethinking learning in the digital age: Making the learning sciences count, 13th international conference of the learning sciences (ICLS) 2018* (Vol. 3, pp. 1755–1757). International Society of the Learning Sciences (ISLS).
15. Konecki, M., Lovrenčić, S., **Seo, J.**, & LaPierre, C. (2017). The role of ICT in aiding visually impaired students and professionals. *Proceedings of the 11th Multidisciplinary Academic Conference*, 148.
16. **Seo, J.**, AlQahtani, M., Ouyang, X., & Borge, M. (2017). Embracing learners with visual impairments in CSCL. In B. K. Smith, M. Borge, E. Mercier, & K. Y. Lim (Eds.), *Making a difference: Prioritizing equity and access in CSCL, 12th international conference on computer supported collaborative learning (CSCL) 2017* (Vol. 2, pp. 573–576).

## BOOK CHAPTERS

1. \* **Seo, J.**, & Dogucu, M. (2024). Data science and accessibility. In A. Ko, R. Ladner, & A. Oleso (Eds.), *Teaching accessible computing*. University of Washington.

## PUBLICATIONS IN HEALTHCARE

1. Choi, S., & **Seo, J.** (2020). An exploratory study of the research on caregiver depression: Using bibliometrics and LDA topic modeling. *Issues in Mental Health Nursing*, 1–10. <https://doi.org/10.1080/01612840.2019.1705944>
2. Choi, S., & **Seo, J.** (2019). Analysis of caregiver burden in palliative care: An integrated review. *Nursing Forum*, 54(2), 280–290. <https://doi.org/10.1111/nuf.12328>
3. Choi, S., & **Seo, J.** (2019). Heart failure research using text mining: A systematic review. *NURSING RESEARCH*, 68(2), E119–E120.
4. Choi, S., & **Seo, J.** (2019). Trends in self-management among adults with heart failure from 2011 to 2016 using the national health and nutrition examination surveys. *Journal of Cardiac Failure*, 25(8), S4. <https://doi.org/10.1016/j.cardfail.2019.07.540>
5. Choi, S., **Seo, J.**, & Kitko, L. (2019). Exploring the lived experience of a family member with advanced heart failure: Using a text mining approach. *The First International Conference on Quantitative Ethnography: Poster Session*, S8–S9.
6. Choi, S., & **Seo, J.** (2018). Effects of nonpharmacological interventions for fatigue in patients with heart failure: A systematic review and meta-analysis. *Journal of Cardiac Failure*, 24(8), S73–S74.

## WORKING PAPERS UNDER REVISION OR REVIEW

1. \* Lee, J., Lee, B., Choi, S., **Seo, J.**, & Choe, E. K. (under review). Identify, adapt, persist: The journey of blind and low-vision individuals with personal health technologies. *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems*.
2. \* Moon, J., **Seo, J.**, & Awoyemi, D. (under review). Navigating social complexity: The synergistic use of ChatGPT and epistemic network analysis for social skills assessment in autistic children in virtual reality-based training. *Journal of Computer Assisted Learning*.
3. \* **Seo, J.**, Xia, Y., Lee, B., McCurry, S., & Yam, Y. J. (under review). MAIDR: Making statistical visualizations accessible with multimodal data representation. *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems*.

## Conference Presentations and Invited Talks

**Seo, J.** (2023, November). *Insight Over Eyesight: My Journey as a Blind Data Scientist*. Invited talk at the Chicago Lighthouse Career Fair, Chicago, IL (virtual).

**Seo, J.** (2023, November). *Beyond Sight: Envisioning Data Science Through Multimodal Access*. Invited as a keynote speaker at the 2023 UIUC iSchool's Research Showcase, Champaign, IL.

**Seo, J.** (2023, November). *Understanding Multi-Modality of Blind People Towards Inclusive STEM Learning*. Invited talk at the UIUC CI590 DELTA Seminar, Champaign, IL.

**Seo, J.** (2023, July). *Screen Reader User Experience Deep Dive*. Invited talk at the Microsoft Visual Studio Code Team, virtual.

**Seo, J.** (2023, June). *Perceiving Beyond Vision: My Journey Through Dreamscapes, Numerical Cognition, and a Blind Critique of Inclusive Data Visualization*. Invited talk at the Dagstuhl Inclusive Data Visualization Workshop, Dagstuhl, Germany.

**Seo, J.** (2023, May). *Enhancing Accessibility in Programming and Fostering Inclusive Data Science via Multimodal Strategies*. Invited talk at the Campus Research Computing Consortium, virtual.

Invited panel (2023, May): *Human Computer Relationships Work?: Embodiment, Inclusive Design, Accessibility, and Emerging Technologies for Learning*, hosted by PhET Interactive Simulations at University of Colorado Boulder.

Invited demo by Microsoft (2023, April): *VSCoDe Accessibility*. VS Code Day 2023: <https://m.youtube.com/watch?v=X3qUf0B3x8Q>

Invited panel (2022, December): *Integrating Accessibility into a Computing Career*, hosted by Associate Professor Stacy Branham at Informatics of the University of California, Irvine. (virtual).

**Seo, J.** (2022, November). *Accessible Library Makerspaces*. Invited talk at the UIUC iSchool IS571: Accessibility in Library Resources, Champaign, IL (virtual).

**Seo, J.** (2022, September). *Digital Accessibility*. Invited panel at the INFOcon 2022, virtual.

**Seo, J.** (2022, April). *Accessible Data Visualization in a Reproducible Way*. Invited talk at Champaign-Urbana Data Science User Group, Champaign, IL (virtual).

**Seo, J.** (2022, March). *Understanding Multi-Modality of Blind People Towards Inclusive STEM Learning*. Invited talk at the UIUC iSchool Proseminar, Champaign, IL (virtual).

**Seo, J.** (2022, March). *Universal Design = Usability \* Accessibility (With Practical Examples Beyond Conceptual Frameworks)*. Invited talk at INTE 535 Analysis, Implementation, and Evaluation of Assistive Technology. Instructional Technology program of the University of Alabama, Tuscaloosa, AL (virtual).

**Seo, J.** (2022, March). *Your Condition is Not Your Conclusion*. Invited talk at HTM4311: Hotel Professional Development at the Hong Kong Polytechnic University (virtual).

**Seo, J.** (2021, November). *SCAFFOLDing All Abilities into Makerspaces*. Invited talk at the UIUC iSchool IS582: Make, Design, & Learn in Libraries, Champaign, IL (virtual).

**Seo, J.** (2021, October). *Non-Visual Strategies for Making Statistical-Computing Accessible*. Lightening talk at the National Center for Supercomputing Applications, Champaign, IL.

**Seo, J.** (2021, September). *Accessibility of Science Beyond Content Accessibility*. Talk presented at the Argonne National Laboratory (Maths and Computer Science Division): <https://www.anl.gov/event/accessibility-of-science-beyond-content-accessibility>.

Invited panel (2021, August). DO-IT Neuroscience for Neurodiverse Learners Faculty panel at the University of Washington, virtual.

**Seo, J.** (2021, June). *How to Learn to Code*. Invited Talk presented at the Nature, Webcast: <https://doi.org/10.1038/d41586-021-01638-z>.

**Seo, J., & Richard, G. T.** (2021, February). *Uncovering latent topics of blind people in computer science: structural topic modeling for an email corpus*. Poster presented at the 2nd International Conference on Quantitative Ethnography (ICQE), Malibu, CA.

Donegan, S. R., Porter, C., Fogel, A., **Seo, J.**, Choi, S., & Eagan, B. (2021, February). *U.S. media coverage during COVID-19: an epistemic network analysis of bias, topic, and trajectory*. Poster presented at the 2nd International Conference on Quantitative Ethnography (ICQE), Malibu, CA.

**Seo, J.** (2021, January). *Accessible data science beyond visual models*. Talk presented at the rstudio::global(2021), Virtual: <https://global.rstudio.com/student/page/40617>.

**Seo, J.** (2020, September). *Discovering knowledge sharing patterns of blind people pursuing STEM disciplines: data science and computational linguistics on large-scale email corpora*. Poster presented at the Doctoral Consortium of the annual meeting of the ACM Richard Tapia Celebration of Diversity in Computing, virtual. *Awarded the Qualcomm scholarship*.

**Seo, J., & Richard, G. T.** (2020, April). *Maker inclusivity = maker accessibility: further interrogations for diverse participation*. Poster presented at the annual meeting of the American Educational Research Association (AERA), Virtual.

**Seo, J., & Richard, G. T.** (2018, April). *Furthering inclusivity in making: a framework for accessible design of makerspaces for learners with disabilities*. Poster presented at the annual meeting of the American Educational Research Association (AERA), New York City, NY.

Bunag, T., Aniela, L., Nielsen, M. C., & **Seo, J.** (2017, November). *The rapidly changing world of accessible online learning*. Presented at the Panel Discussion: DDL - Accessible Online Learning In Concurrent Presentation of the Association for Educational Communications and Technology (AECT), Jacksonville, FL.

**Seo, J.** (2017, September). *Tactile access to visualized statistical data using R*. Poster presented at the annual meeting of the ACM Richard Tapia Celebration of Diversity in Computing, Atlanta, GA.

Liao, J., Patcyk, M., **Seo, J.**, & Hooper, S. (2016, October). *Using hierarchical linear modeling to measure growth rate in a gamified CBM environment*. Paper presented at the annual meeting of the Northeastern Educational Research Association (NERA), Trumbull, CT.

**Seo, J.** (2016, March). *Engaging blind learners in statistics study using R*. Presented at the annual meeting of the Teaching and Learning with Technology (TLT) Symposium, University Park, PA.

Kim, K., **Seo, J.**, & Clariana, R. B. (2016, March). *Automatic knowledge structure measure in online courses*. Presented at the annual meeting of the Teaching and Learning with Technology (TLT) Symposium, University Park, PA.

**Seo, J.** (2015, November). *Assistive technologies for equal access in general education*. Presented at the annual meeting of the Association for Educational Communications and Technology (AECT), Indianapolis, IN.

**Seo, J.**, & Park, E. (2015, October). *The more accessible, the more potential: simple tips for online accessibility*. Presented at the Technology and Learning Conference, Blue Bell, PA.

## Media Coverage

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1. McCallen, B. (2023, November 3). *Data visualization for the blind*. <https://speakingoutfortheblind.weebly.com/list-of-episodes-and-show-news/for-more-information-episode-329-data-visualization-tool-for-the-blind>
2. Heckel, J. (2023, September 29). *Information sciences professor developing tool to make data visualizations accessible to blind researchers, students*. News Bureau University of Illinois Urbana-Champaign. <https://news.illinois.edu/view/6367/107909242>
3. Katsnelson, A. (2023). These tools help visually impaired scientists read data and journals. *Nature*, 615(7951, 7951), 362–363. <https://doi.org/10.1038/d41586-023-00645-6>

## Software Developments and Publications

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### DATA SCIENCE PACKAGES IN COMPREHENSIVE R ARCHIVE NETWORK (CRAN)

1. Iannone, R., Cheng, J., Schloerke, B., Hughes, E., Lauer, A., & **Seo, J.** (2023). *gt: Easily Create Presentation-Ready Display Tables* (Version 0.9.0) [Computer software]. <https://CRAN.R-project.org/package=gt>. Over 1.5M download.
2. **Seo, J.**, & Choi, S. (2020). *Youtubecaption: Downloading YouTube subtitle transcription in a tidy tibble data frame* [Computer software]. <https://CRAN.R-project.org/package=youtubecaption>. Over 18K download.
3. **Seo, J.**, & Choi, S. (2019). *Ezpickr: Easy data import using GUI file picker and seamless communication between an excel and r* [Computer software]. <https://CRAN.R-project.org/package=ezpickr>. Over 31K download.
4. **Seo, J.**, & Choi, S. (2019). *Mboxr: Reading, extracting, and converting an mbox file into a tibble* [Computer software]. <https://CRAN.R-project.org/package=mboxr>. Over 25K download.

## OPEN-SOURCE PROJECT ON GITHUB

1. **Seo, J.** (2020). *Edmdown: Writing a reproducible article for journal of educational DataMining in r markdown*. <https://github.com/jooyoungseo/edmdown>. R package version 0.0.0.9000.
2. **Seo, J.**, Chan, T., Michaelis, J. E., & Rosenberg, J. M. (2020). *Isldown: Writing a reproducible conference paper for the international society of the learning sciences annual meeting in r markdown*. <https://github.com/jooyoungseo/isldown>. R package version 0.0.0.9000.
3. **Seo, J.**, & Rosenberg, J. M. (2020). *Jlardown: Writing a reproducible article for journal of learning analytics in r markdown*. <https://github.com/jooyoungseo/jlardown>. R package version 0.0.0.9000.
4. **Seo, J.** (2019). *Ezviewr: View tidy data in preferable spreadsheet*. <https://github.com/jooyoungseo/ezviewr>. R package version 0.1.0.
5. **Seo, J.** (2019). *tactileR: Converting r graphics into a braille ready-to-print PDF*. <https://github.com/jooyoungseo/tactileR>. R package version 0.1.0.
6. **Seo, J.**, & McCurry, S. (2019). *AROW: Accessible RMarkdown online writer*. <http://www.arowtool.com>

## OFFICIALLY CODE CONTRIBUTING R PACKAGES

- My GitHub pull requests have been peer-reviewed and merged for active data science R packages:

### Chang, W., Cheng, J., Allaire, J., Xie, Y., & McPherson, J.

SHINY: WEB APPLICATION FRAMEWORK FOR R

- Contributed to improving keyboard and TTS accessibility for input widgets.

<https://cran.r-project.org/web/packages/shiny/>  
2020

### O'Hara-Wild, M., & Hyndman, R.

VITAE: CURRICULUM VITAE FOR R MARKDOWN

- Contributed to enabling LaTeX engine customization.
- Contributed to displaying multiple bibliographies based on lua filter.

<https://cran.r-project.org/web/packages/vitae/>  
2020

### Allaire, J., Xie, Y., et al.

RMARKDOWN: DYNAMIC DOCUMENTS FOR R

- Contributed to improving ioslides\_presentation accessibility for screen reading software.

<https://cran.r-project.org/web/packages/rmarkdown/>  
2019

### Xie, Y.

BOOKDOWN: AUTHORING BOOKS AND TECHNICAL DOCUMENTS WITH R MARKDOWN

- Developed `context_document2`, `github_document2`, `beamer_presentation2`, `html_fragment2`, `html_notebook2`, `html_vignette2`, `ioslides_presentation2`, `slidy_presentation2` and `rtf_document2` functions to enable R markdown users to utilize cross-references for figures and tables through bookdown package.

<https://cran.r-project.org/web/packages/bookdown/>  
2019

### Allaire, J., Iannone, R., & Xie, Y.

DISTILL: 'R MARKDOWN' FORMAT FOR SCIENTIFIC AND TECHNICAL WRITING

- Contributed to displaying more metadata for journal article bib\_entries.
- Improved screen reader accessibility for navigation bar.
- Added missing Google Scholar meta tags for conference, technical report, and dissertation types.

<https://cran.r-project.org/web/packages/distill/>  
2019

### Marwick, B.

WORDCOUNTAADDIN: WORD COUNTS AND READABILITY STATISTICS IN R MARKDOWN DOCUMENTS

- Contributed to `text_stats()` function for R markdown users to Get a word count and some other stats for selected text (excluding code chunks and inline code).

<https://git.io/JkJca>  
2019

### Godfrey, A. J. R., Warren, D., Murrell, P., Bilton, T., & Sorge, V.

BRAILLER: IMPROVED ACCESS FOR BLIND USERS

- Contributed to `BRLThis()` function to enable blind R users to convert a graph into a pdf ready for embossing in Braille.

<https://cran.r-project.org/web/packages/BrailleR/>  
2019

## Teaching Experience

- IS 407: Introduction to Data Science (spring 2022-present).
- IS 569: Internship (spring 2022). *Advised Ankita Khiratkar (MS IM)*.

- IS 589: Independent Study (spring 2022). *Advised Chetna Beri (MS IM).*
- INFO 399: Individual Study (spring 2022). *Advised Leo Zhang (CS undergrad → Currently, Master's student at UCLA Data Science dept).*
- IS 389: Independent Study (spring 2022). *Advised Miso Kim (BS IS).*
- IS 226: Introduction to Human-Computer Interaction (fall 2021). *Co-teaching with Dr. Yang Wang.*
- Served as an annual review committee member for iSchool Ph.d. student Smirity Kaushik (advisor Dr. Yang Wang) (spring 2022).
- Served as a field exam committee member for iSchool Ph.D. candidate Jaihyun Park (advisor Dr. Ryan Cordell) (spring 2022).

## Awards and Honors

### ACM Richard Tapia Celebration of Diversity in Computing Conference

QUALCOMM SCHOLARSHIP

Virtual

Sep. 2020

- Selected as one of the outstanding doctoral consortium proposals.

### Disability:IN

2020 NEXTGEN LEADERS

Alexandria, VA

Feb. 2020 - Jul. 2020

- Selected as one of the leaders in the U.S. for diversity.

### AccessComputing, University of Washington

ACCESSSTEM RESUME CONTEST WINNERS AWARD

Seattle, WA

Dec. 2019

- Sponsored by The National Science Foundation (NSF).

### The First International Conference on Quantitative Ethnography

BEST DOCTORAL PROPOSAL FELLOWSHIP

Madison, WI

Oct. 2019

- Sponsored by Cengage.

### The PDK Educational Foundation

ANDREW V. KOZAK MEMORIAL FELLOWSHIP

University Park, PA

2019

- Awarded \$1,500 for research contribution to public education.

### The Spencer Foundation

AERA PRE-CONFERENCE TRAVEL AWARD

Toronto, ON, Canada

Apr. 2019

### The Pennsylvania State University

DELTA GAMMA GOLDEN ANCHOR AWARD

University Park, PA

2015, 2017

### The National Science Foundation (NSF)

ACM RICHARD TAPIA CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE SCHOLARSHIP

Atlanta, GA

Sep. 2017

- Included free conference registration, shared hotel accommodations and a \$500 travel stipend.

### Microsoft Research

ACM STUDENT RESEARCH COMPETITION TRAVEL AWARD

Atlanta, GA

Sep. 2017

- \$500 travel stipend was awarded for ACM TAPIA 2017 Student Research Competition (SRC).

### AccessComputing, University of Washington

CSUN CONFERENCE TRAVEL AWARD

Seattle, WA

Mar. 2017

- Sponsored by The National Science Foundation (NSF).

### College of Education

SUMMER TUITION ASSISTANCE FUNDING

University Park, PA

2017

### College of Education

GRADUATE STUDENT TRAVEL GRANT

University Park, PA

Aug. 2016 - Present

### Teaching and Learning with Technology

GRADUATE ASSISTANTSHIP

University Park, PA

Aug. 2016 - Present

### Hyomyoung Scholarship

OUTSTANDING ACADEMIC AWARD

Seoul, South Korea

2014 - 2019

### ANC Scholarship Foundation

ALL NATIONS CHURCH GRADUATE SCHOLARSHIP

Lake View Terrace, CA

2016



## Service

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### School of Information Sciences at the University of Illinois at Urbana-Champaign

SEARCH COMMITTEE FOR DIRECTOR/ASSISTANT DEAN, DIVERSITY, EQUITY, INCLUSION, AND ACCESSIBILITY (DEIA)

Champaign, IL

April 2022 - Present

### School of Information Sciences at the University of Illinois at Urbana-Champaign

DIVERSITY COMMITTEE

Champaign, IL

Sep. 2021 - Apr. 2022

### International Web for All Conference (W4A) 2022

PROGRAM COMMITTEE MEMBER

Virtual

Dec. 2021 - Feb. 2022

### 15th International Conference on Educational Data Mining

ACCESSIBILITY CHAIR

Durham

Oct. 2021 - Jul. 2022

### Special issue on ethnography and learning design

JOURNAL REVIEWER

TechTrends

Sep. 2021

### The Network of Academic Programs in the Learning Sciences (NAPLeS)

REVIEWER

- Reviewed abstracts on equity and disability.

International Society of the Learning  
Sciences

2020

### The Pennsylvania State University

COLLEGE OF EDUCATION TECHNOLOGY COMMITTEE

University Park, PA

Aug. 2019 - May. 2020

- Worked as a student committee member to support understanding of educational technology for College of Education.

### The Pennsylvania State University

LIBRARIES' ACCESSIBILITY STUDENT ADVISORY GROUP

University Park, PA

Aug. 2019 - May. 2020

### The 14th International Conference of the Learning Sciences (ICLS)

REVIEWER

Nashville, TN

2019

### The ACM CHI Conference on Human Factors in Computing Systems (CHI 2020, 2021)

REVIEWER

Honolulu, HI, Yokohama, Japan

2019, 2020

### The 1st International Conference on Quantitative Ethnography (ICQE)

REVIEWER

Madison, WI

2019

### The 3rd Learning Sciences Graduate Student Conference (LSGSC)

REVIEWER

Nashville, TN

2018

### The 2nd Learning Sciences Graduate Student Conference (LSGSC)

REVIEWER

Bloomington, IN

2017

### Center for Online Innovation in Learning (COIL), The Pennsylvania State University

FUNDING REVIEWER

University Park, PA

2016

## Current Memberships

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- International Society of the Learning Sciences (ISLS)
- Association for Computing Machinery (ACM)
- American Statistical Association (ASA)
- International Society for Quantitative Ethnography (ISQE)
- International Association of Accessibility Professionals (IAAP)
- International Educational Data Mining Society (IEDMS)