

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
<ul style="list-style-type: none">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
Department of Computer Science	University of Illinois at Urbana-Champaign
FACULTY AFFILIATE	Apr. 2024 - Present
Illinois Informatics Institute	University of Illinois at Urbana-Champaign
FACULTY AFFILIATE	Sep. 2021 - Present
National Center for Supercomputing Applications	University of Illinois at Urbana-Champaign
FACULTY AFFILIATE	Dec. 2021 - Present
Beckman Institute for Advanced Science and Technology	University of Illinois at Urbana-Champaign
FACULTY AFFILIATE	Dec. 2023 - 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
AccessComputing	University of Washington
ACCESSCOMPUTING PARTNER	Feb. 2024 - 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 (NI-DILRR), 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

- 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. * Choi, S., **Seo, J.**, Hernandez, M., & Kitsiou, S. (2024). Conversational agents in mHealth: Use patterns, challenges, and design opportunities for individuals with visual impairments. *Journal of Technology in Behavioral Science*. <https://doi.org/10.1007/s41347-024-00409-7>
2. * 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>
3. * 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>
4. * 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>
5. * **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>

6. * **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*.
7. * **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>
8. 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>
9. * **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>
10. **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>
11. **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. * Lee, J. G. W., Lee, B., Choi, S., **Seo, J.**, & Choe, E. K. (2024). Identify, Adapt, Persist: The Journey of Blind Individuals with Personal Health Technologies. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 8(2), 51:1–51:21. <https://doi.org/10.1145/3659585>
2. * **Seo, J.**, O'Modhrain, S., Xia, Y., Kamath, S., Lee, B., & Coughlan, J. M. (2024). Designing born-accessible courses in data science and visualization: Challenges and opportunities of a remote curriculum taught by blind instructors to blind students. *EuroVis*.
3. * **Seo, J.**, Xia, Y., Lee, B., McCurry, S., & Yam, Y. J. (2024). MAIDR: Making Statistical Visualizations Accessible with Multimodal Data Representation. *Proceedings of the CHI Conference on Human Factors in Computing Systems*, 1–22. <https://doi.org/10.1145/3613904.3642730>
4. * 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>
5. * 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>
6. * 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>
7. * **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>
8. * **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.
9. * 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>
10. * 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.
11. * 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.
12. * **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*.