

JooYoung Seo

PH.D. CANDIDATE (ABD)

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I am a learning scientist, software engineer, and internationally-certified accessibility professional.

Skills

Braille	UEB (Unified English Braille), Nemeth (Math), Korean, Japanese Brailles
Data Science	R (highly advanced: published 3 packages in CRAN), Python (advanced: tensorflow/keras/scikit-learn), SQL
Reproducible Report	Markdown/Rmarkdown, R shiny apps, Jupyter Notebook, LaTeX, Pandoc, lua
DevOps	Git, Docker, AWS, Travis CI, Cygwin
Front-End	HTML/CSS/JS/PHP/ARIA (advanced level to design according to WCAG 2.0/2.1), WordPress, Drupal, Hugo
Back-End	Unix/Linux Shell scripts, LAMP, Django, REST API
Compile Programming Languages	C/C++/C#, Java, Quorum (as basic level to review source codes and develop simple modules)
Quantitative Research	t-test, within-/between-subjects/Repeated Measures ANOVAs/ANCOVAs/MANOVAs/MANCOVAs, Regressions, HLM, Factor Analysis, Network Analysis, SEM, PCA, Unsupervised/Supervised Machine Learning
Qualitative Research	Virtual Ethnography, Content Analysis, Grounded Theory, Phenomenology, Case Studies, Interaction Analysis
Mixed Research	Text Mining, Quantitative Ethnography, Explanatory/Exploratory Sequential Mixed Methods
Languages	English/Korean (bilingual)

Working Experience

Rstudio PBC

SOFTWARE ENGINEER INTERN FOR ACCESSIBILITY

Boston, MA

May. 2020 - Aug. 2020

ICE Soft

CO-FOUNDER AND PROJECT MANAGER

Seoul, South Korea

Jul. 2010 - Jun. 2011

National Human Rights Commission of Korea

INTERN

Seoul, South Korea

May. 2010 - Nov. 2010

Research Experience

IT Accessibility Team, Teaching and Learning with Technology (TLT)

GRADUATE ASSISTANT

University Park, PA

Aug. 2016 - Present

Playful Learning and Inclusive Design Research Group

GRADUATE RESEARCHER

University Park, PA

Aug. 2016 - Present

Online Interactions of the Blind Research Project

PRINCIPAL INVESTIGATOR

University Park, PA

May. 2019 - Present

Accessible RMarkdown Online Writer (AROW) Project, Teaching and Learning with Technology (TLT)

PROJECT MANAGER

University Park, PA

May. 2018 - Present

Accessibility of Maker Toolkits Research Project

PRINCIPAL INVESTIGATOR

University Park, PA

Jun. 2017 - Present

Learning2CC Project

SITE MANAGER

University Park, PA

Feb. 2015 - Dec. 2015

Avenue PM Research Group

GRADUATE RESEARCHER

University Park, PA

Sep. 2014 - May. 2016

Certificates

IBM	<i>Coursera</i>
PYTHON FOR DATA SCIENCE AND AI	Apr. 2020 - Present
IBM	<i>Coursera</i>
DATA ANALYSIS WITH PYTHON	Apr. 2020 - Present
IBM	<i>Coursera</i>
DATABASES AND SQL FOR DATA SCIENCE	Apr. 2020 - Present
IBM	<i>Coursera</i>
DATA SCIENCE METHODOLOGY	Mar. 2020 - Present
IBM	<i>Coursera</i>
OPEN SOURCE TOOLS FOR DATA SCIENCE	Mar. 2020 - Present
NV Access	<i>Lucia South, QLD, Australia</i>
CERTIFIED EXPERT WITH NVDA (NON-VISUAL DESKTOP ACCESS) SCREEN READER	Dec. 2019 - Present
International Association of Accessibility Professional	<i>Atlanta, GA</i>
CERTIFIED PROFESSIONAL IN ACCESSIBILITY CORE COMPETENCIES	Apr. 2017 - Present
Korean Ministry of Education	<i>Sejong, South Korea</i>
ENGLISH TEACHER CERTIFICATE FOR SECONDARY EDUCATION	Feb. 2014 - Present
Korean Ministry of Education	<i>Sejong, South Korea</i>
GENERAL EDUCATION TEACHER CERTIFICATE FOR SECONDARY EDUCATION	Feb. 2014 - Present

Education

The Pennsylvania State University	<i>University Park, PA</i>
PH.D. IN LEARNING, DESIGN, AND TECHNOLOGY	Aug. 2016 - Present
<ul style="list-style-type: none"> Expected graduation: May 2021. Dissertation Title: "Discovering Informal Learning Cultures of Blind Individuals Pursuing STEM Disciplines: A Quantitative 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	<i>University Park, PA</i>
M.ED. IN LEARNING, DESIGN, AND TECHNOLOGY	Aug. 2014 - May. 2016
<ul style="list-style-type: none"> GPA 3.97/4.0. 	
Sungkyunkwan University	<i>Seoul, South Korea</i>
B.A. IN EDUCATION	Mar. 2009 - Feb. 2014
<ul style="list-style-type: none"> GPA 4.08/4.50. 	
Sungkyunkwan University	<i>Seoul, South Korea</i>
B.A. IN ENGLISH LITERATURE	Mar. 2009 - Feb. 2014
<ul style="list-style-type: none"> GPA 4.08/4.50. 	

Publications

REFEREED JOURNAL PAPERS

- 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>
- 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

- Seo, J., & Richard, G. T.** (in press-). 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. International Society of the Learning Sciences (ISLS).

- 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.
- 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).
- 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.
- 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). International Society of the Learning Sciences (ISLS).
- 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.

PUBLICATIONS IN HEALTHCARE

- I have contributed to the following publications for their methods and research designs.

- 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*, 0(0), 1–10. <https://doi.org/10.1080/01612840.2019.1705944>
- 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>
- Choi, S., & **Seo, J.** (2019). Heart failure research using text mining: A systematic review. *NURSING RESEARCH*, 68(2), E119–E120.
- 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>
- 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.
- 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.

Software Developments and Publications

DATA SCIENCE PACKAGES IN COMPREHENSIVE R ARCHIVE NETWORK (CRAN)

- Seo, J.**, & Choi, S. (2020). *Youtubecaption: Downloading youtube subtitle transcription in a tidy tibble data frame*. <https://CRAN.R-project.org/package=youtubecaption>
- Seo, J.**, & Choi, S. (2019). *Ezpickr: Easy data import using gui file picker and seamless communication between an excel and r*. <https://CRAN.R-project.org/package=ezpickr>
- Seo, J.**, & Choi, S. (2019). *Mboxr: Reading, extracting, and converting an mbox file into a tibble*. <https://CRAN.R-project.org/package=mboxr>

OPEN-SOURCE PROJECT ON GITHUB

- Seo, J.** (2019). *Edmdown: Writing a reproducible article for journal of educational datamining in r markdown*. <https://github.com/jooyoungseo/edmdown>
- Seo, J.** (2019). *Ezviewr: View tidy data in preferable spreadsheet*. <https://github.com/jooyoungseo/ezviewr>

Seo, J. (2019). *Jlardown: Writing a reproducible article for journal of learning analytics in r markdown*. <https://github.com/jooyoungseo/jlardown>

Seo, J. (2019). *TactileR: Converting r graphics into a braille ready-to-print pdf*. <https://github.com/jooyoungseo/tactileR>

Seo, J., & McCurry, S. (2019). *AROW: Accessible rmarkdown online writer*. <http://www.arowtool.com>

OFFICIALLY CODE_CONTRIBUTING R PACKAGES

- My 18 GitHub pull requests have been peer-reviewed and merged for active data science R packages:

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: AUTHORIZING 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.

WORDCOUNTADDIN: WORD COUNTS AND READABILITY STATISTICS IN R MARKDOWN DOCUMENTS

- Contributed 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://github.com/benmarwick/wordcountaddin>
2019

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

BRAILLER: IMPROVED ACCESS FOR BLIND USERS

- Contributed 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

Presentations

PEER-REVIEWED CONFERENCE PRESENTATIONS

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

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.

Awards and Honors

Disability:IN

2020 NEXTGEN LEADERS

Alexandria, VA

Feb. 2020 - Jul. 2020

AccessComputing, University of Washington

ACCESSSTEM RESUME CONTEST WINNERS AWARD

Seattle, WA

Dec. 2019

The First International Conference on Quantitative Ethnography

BEST DOCTORAL PROPOSAL FELLOWSHIP

Madison, WI

Oct. 2019

The PDK Educational Foundation

ANDREW V. KOZAK MEMORIAL FELLOWSHIP

University Park, PA

2019

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

2017

The Pennsylvania State University

DELTA GAMMA GOLDEN ANCHOR AWARD

University Park, PA

2015

The National Science Foundation (NSF)

ACM RICHARD TAPIA CELEBRATION OF DIVERSITY IN COMPUTING CONFERENCE SCHOLARSHIP

Atlanta, GA

Sep. 2017

Microsoft Research

ACM STUDENT RESEARCH COMPETITION TRAVEL AWARD

Atlanta, GA

Sep. 2017

AccessComputing, University of Washington

CSUN CONFERENCE TRAVEL AWARD

Seattle, WA

Mar. 2017

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

ChungInwook Scholarship Foundation

ACADEMIC SCHOLARSHIP FOR DOCTORAL RESEARCH

Seoul, South Korea

2016 - 2018

ANC Scholarship Foundation

ALL NATIONS CHURCH GRADUATE SCHOLARSHIP

Lake View Terrace, CA

2016

National Institute for International Education, Korean Government

FUTURE INTERDISCIPLINARY STUDY OF GLOBAL KOREA SCHOLARSHIP FOR MASTER'S RESEARCH

Seoul, South Korea

2014 - 2016

Notes

- This CV is reproducible; all the source code behind this CV is available at this GitHub repo.
- More comprehensive CV is also available if you click this link.

SEO