Jinnie Shin

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Education

2021   **University of Alberta**   Edmonton, AB, Canada
Ph.D. in Measurement, Evaluation and Data Science
Department of Educational Psychology
Dissertation: *Automated Item Generation by Combining the Nontemplate and Template- based Approaches to Generate Reading Inference Test Items*
Supervisor: Dr. Mark J. Gierl

2018   **University of Alberta**   Edmonton, AB, Canada
M.Ed. in Measurement, Evaluation and Cognition
Department of Educational Psychology
Thesis: *A Neural Network Approach to Automated Essay Scoring: A Comparison with the Method of Integrating Deep Language Features using CohMetrix (Published in Language Testing, 2020)*
Supervisor: Dr. Mark J. Gierl

2016   **Gyeongin National University of Education**   South Korea
B.Ed. in English Education
Department of Elementary Education

Current Appointment

2021-   **Assistant Professor**   University of Florida
Research, Evaluation, and Measurement, H-DOSE, College of Education   *Gainesville, FL, USA*

Appointments

2021   **Senior Research Scientist**   Altus Assessments
External Research Department   *Toronto, ON, Canada*

2019-   **NLP Research Extern**   Virtual Learning Lab
2020   External Research Intern with the Arizona State University   *Gainesville, FL, USA*

2020	**NLP Research Intern**	Medical Council of Canada
	External Research Intern with the Arizona State University	*Ottawa, ON, Canada*

2020	**NLP Research Consultant**	National Certificate of Education Assessment
	Automated Essay Scoring Consultant	*Wellington, New Zealand*

2019	**Visiting Scholar**	American College Testing (ACT inc.)
	Automated Item Generation Research Consultant	*Iowa city, IA*

2017- 2020	**Statistical Consultant**	University of Alberta
	Centre for Research in Applied Measurement and Evaluation	*Edmonton, AB, Canada*

2017- 2020	**Research Intern**	Alberta Education
	Provincial Achievement Sector/Research Branch	*Edmonton, AB, Canada*

Affiliate Positions and Programs

2021-	**Institute for Advanced Learning Technologies**	University of Florida
	Member, College of Education	*Gainesville, FL, USA*

2020-	**Virtual Learning Lab**	University of Florida
	Key collaborator, College of Education	*Gainesville, FL, USA*

2016- 2021	**Centre for Research in Applied Measurement and Evaluation**	University of Alberta
	Research Assistant, Dept of Educational Psychology	*Edmonton, AB, Canada*

Scholarship and Award

2018	Doctor of Recruitment Scholarship	$5,000	University of Alberta
	Awarded to superior doctoral level students who have the potential to contribute to the University's research significantly.		*Edmonton, AB, Canada*

2018	Myer Horowitz Travel Award	$1,500	University of Alberta
	Faculty of Education		*Edmonton, AB, Canada*

2018, 2019	GSA Academic Travel Award	$1,000	University of Alberta
	Graduate Student Association		*Edmonton, AB, Canada*

2018, 2019	Mary Louise Imrie Graduate Student Award	$1,000	University of Alberta
	Faculty of Education		*Edmonton, AB, Canada*

2019	Educational Psychology Travel Award	$500	University of Alberta
	Faculty of Education		*Edmonton, AB, Canada*

Grant

2022-2025	Democratizing Digital Learning: An Intelligent Learning and Assessment Environment for Supporting Early Literacy Development (Subcontract from the University of Alberta) **Spencer Foundation**	(UF: $419,836)	*Pending* Role: **CO-PI**
2021-2024	Early Literacy for All Children: An Intelligent Learning and Assessment System for Addressing Disproportionate Learning Losses in Reading (Subcontract from the University of Alberta) **TD Ready Challenge**	(UF: $373,509)	*Pending* Role: **CO-PI**
2022-2026	MaT-Coach: A Personalized Communication Coach for Math Educators (Subcontract from the Arizona State University) **Institute of Education Sciences**	(UF: $895,349)	*Pending* Role: **CO-PI**

Peer-reviewed Book Chapters

[1] Gierl, M. J., **Shin, J.**, & Firoozi, T. (in press). Automatic Item Generation. In R. Tierney, F. Rizvi, K. Erickan, & G. Smith (Eds.), International Encyclopedia of Education (4th Ed.). New York: Elsevier.

[2] **Shin, J.** & Guo, Q. & Gierl, M. J. (2020). Automated essay scoring using deep learning. In M. Khosrow-Pour (Editor), Handbook of Research on Modern Educational Technologies, Applications, and Management (Vol. 2) IGI-Global. DOI: 10.4018/978-1-7998- 3476-2

Peer-reviewed Journal Articles

[1] **Shin, J.**, Chen, F., Lu, C. & Bulut, O. (2021). Using time-series prediction to inform test administration decisions in computerized formative assessment. Journal of Computers in Education. DOI: 10.1007/s40692-021-00196-7

[2] **Shin, J.**, & Bulut, O. (2021). Building an intelligent recommendation system for personalized test scheduling: A reinforcement learning approach. Behavior Research Methods. DOI: 10.3758/s13428-021-01602-9

[3] Bulut. O., Cormier, D. C. & **Shin, J.** (2020). An Intelligent recommender system for personalized test administration scheduling with computerized formative assessments. Frontiers in Education, 5, 1-11. DOI: 10.3389/feduc.2020.572612

[4] **Shin, J.** & Gierl, M. J. (2020). More Efficient Processes for Creating Automated Essay Scoring Frameworks: A Demonstration of Two Algorithms. Language Testing. DOI:10.1177/0265532220937830

[5] **Shin, J.**, Bulut, O. & Gierl, M. J. (2020). Development practices of trusted AI systems among Canadian data scientists. International Review of Information Ethics. DOI: 10.29173/irie377

[6] **Shin, J.**, Bulut, O. & Gierl, M. J. (2019). The Effect of Best distractor location on the diculty of multiple-choice items. Journal of Experimental Education. DOI: 10.1080/00220973.2019.1629577

[7] **Shin, J.**, Guo, Q. & Gierl, M. J. (2019). Multiple-Choice Item Distractor Development using Topic Modelling Approaches. Frontiers in Psychology, 10:825. DOI: 10.3389/fpsyg.2019.00825.

Peer-reviewed Proceedings

[1] **Shin, J.**, Balyan, R., Banawan, M., Leite, W. L., & McNamara, D. S (2021). Pedagogical Communication Language in Video Lectures: Empirical Findings from Algebra Nation. In Proceedings of International Conference of the Learning Sciences 2021. Proceedings of Educational Data Mining Conference 2021 (p.323-329).

[2] Banawan, M., Balyan, R., **Shin, J.**, Leite, W. L., & McNamara, D. S (2021). Linguistic Features of Discourse within an Algebra Online Discussion Board Authors. In Proceedings of Educational Data Mining Conference 2021. https://educationaldatamining.org/EDM2021/virtual/static/pdf/EDM21_paper_89.pdf

Technical Reports & Evaluation Reports

[1] Gierl, M. J. & **Shin, J.** (2020). Using Automated Procedures to Machine Score Essays. Written in the New Zealand NCEA Examination Content Areas of English and History. Wellington, NZ: New Zealand Qualification Authority

Manuscripts Under Review

[1] **Shin, J.** & Gierl, M. J. (under review). Automated Generation of Fill-in-the-blank Questions for Reading Comprehension Examinations [Invited Paper]

[2] **Shin, J.**, & Gierl, M. J. (under review). A Technology-Enhanced Approach for Locating Timely and Relevant News Articles for Context-Based Science Education [Invited Book Chapter]

[3] Firoozi, T., **Shin, J.**, Gierl, M. J., & Bulut, O. (under review). The Effect of Option Similarity on The Item Difficulty of A Reading Comprehension Test: An Application of Word Embedding Techniques.

[4] **Shin, J.**, Gierl, M. J., & Lai, H. (under review). The Importance of Content Coding in Automatic Item Generation. [Invited Paper]

Manuscripts In Preparation

[1] Gierl, M. J., Lai, H. & **Shin, J.** (in preparation). Metadata [white paper]

[2]   **Shin, J.**, Balyan, R., Banawan, M., Leite, W. L., & McNamara, D. S (in preparation). Tutoring discourse and student learning in Online Mathematics Learning Environments: A THeory-based Natural Language Processing Approach

[3]   **Shin, J.**, Guo, Q., Alves, C., & Morin, M. (In preparation). Interaction log Analysis of Proctoring Modalities in high-stakes Medical Licensing Exams

Conference Presentations

[1]   **Shin, J.** & Gierl, M. J. (submitted). Automated Item Generation of Reading Inference Test Items: A Natural Language Processing Approach. 2022 Annual Meeting of American Education Research Association (AERA)

[2]   Banawan, M., Balyan, R., **Shin, J.**, Leite, W. L., & McNamara, D. S (2021, July). Linguistic Features of Discourse within an Algebra Online Discussion Board. Paper presented at the 2021 Annual Conference of Educational Data Mining (EDM)

[3]   **Shin, J.**, Firoozi, T., & Gierl, M. J. (2021, June). ICT Use and Teachers' self-efficacy in Canadian Classrooms: The Mediating Roles of Purposeful Instructional Practices Using the Teaching and Learning International Survey (TALIS) 2018 Results. Paper presented at the 2021 Annual Conference of the Canadian Society for the Study of Education (CSSE)

[4]   **Shin, J.**, Balyan, R., Banawan, M., Leite, W. L., & McNamara, D. S (2021, April). Discovering Pedagogical Communication Strategies with Algebra Tutoring videos with a Theory-based NLP Approach. 2021 Annual Meeting of American Education Research Association (AERA) (Online)

[5]   Bulut, O., Cormier, D. C., & **Shin, J.** (2021, June). The end of one-size-fits-all testing: Personalizing test schedules with recommender systems. Paper presented at the annual meeting of the National Council on Measurement in Education, Baltimore, MD

[6]   **Shin, J.**, Guo, Q., Alves, C., & Morin, M. (2021, June). Interaction log Analysis of Proctoring Modalities in high-stakes Medical Licensing Exams. Paper presented at the annual meeting of the National Council on Measurement in Education, Baltimore, MD

[7]   Firoozi, T., **Shin, J.**, Bulut, O., & Gierl, M. J. (2021, June). The effect of option similarity on the item difficulty of a reading comprehension test: An application of word embedding techniques. Paper presented at the annual meeting of the National Council of Measurement in Education, Baltimore, MD

[8]   **Shin, J.**, Balyan, R., Banawan, M., Leite, W. L., & McNamara, D. S (Nov, 2020). Combining Discourse Analysis and Natural Language Processing: Revealing Paᴄerns of Pedagogical Communication in Algebra Tutoring. 2021 Annual Meeting of the Society for Computation in Psychology (SCIP) (Online)

[9]   **Shin, J.**, Gierl, M. J., Lai, H. & Matovinovic (2020). Automated Reading item Generation Using Topic Modelling Approach. Paper to be presented at the National Council on Measurement in Education, San Francisco, CA, USA (Conference cancelled due to COVID-19)

[10]   **Shin, J.**, Chen, F., Lu, C. & Bulut, O. (2020). Automating Test Administration Decisions in Computerized Formative Assessment. Paper to be presented at the National Council on Measurement in Education, San Francisco, CA, USA (Conference cancelled due to COVID-19)

[11]   **Shin, J.**, Bulut, O. & Gierl, M. J. (2019, May). Development Practices of Trusted AI Systems among Canadian Data Scientists. Paper presented at the AI, Ethics and Society Conference, Edmonton, AB, CA

[12]   **Shin, J.**, Guo, Q. & Gierl, M. J. (2019, April). Using Students' Wri‹ en Responses to Inform Content Specialists about Students' Common Misconceptions. Paper presented at the National Council on Measurement in Education, Toronto, ON, CA

[13]   **Shin, J.** & Gierl, M. J. (2019, April). A Comparison of Machine and Deep Learning Approaches in Automated Essay Scoring. Paper presented at the National Council on Measurement in Education, Toronto, ON, CA

[14]   **Shin, J.** (2019, March). Using Automated Question Answering System for Math Word Problems. Poster session presented at the 12th Annual G.M Dunlop Conference, Edmonton, AB, CA

[15]   **Shin, J.**, Bulut, O. & Gierl, J. M. (2018, April). Does the position of response options ma‹ er? Poster session presented at the National Council on Measurement in Education (NCME) 2018, New York City, NY, USA

Symposium Presentations and Invited Presentations

[1]   **Shin, J.** (2021, June). Identifying Pedagogical Conversational Pa‹ erns in Online Algebra Learning. Ed Games EXPO 2021, Gainesville, FL, USA (Online)

[2]   **Shin, J.** (2021, April). Advances in Assessment in Online Learning Environments. Webinar at the Florida Distance Learning Research Consortium, Gainesville, FL, USA (Online)

[3]   **Shin, J.** (2020, Feb). Automated Item Generation in Reading Assessment. Presentation in the CanAm online Symposium 2020, Edmonton, AB, CA

[4]   **Shin, J.** (2019, Oct). PIRLS 2019 Alberta Student's Achievement Results and Contextual Questionnaire Analysis Results. Poster presented at the 2019 Alberta Research Network Meeting, Edmonton, AB, CA

[5]   **Shin, J.** (2019, Oct). The Effect of Content Coverage on Student Achievement in Mathematics: Preliminary Analysis of TIMSS 2015. Poster presented at the 2019 Alberta Research Network Meeting, Edmonton, AB, CA

[6]   Bulut, O. & **Shin, J.** (2017, September). Examining Item and Response Option Position Effects. Presentation in the CanAm online Symposium 2017, Edmonton, AB, Canada

[7]   **Shin, J.**, Bulut, O. & Gierl J. M., (2017, March). Does the position of response option maᴛer? Poster session presented at the Engage Conference 2017, Edmonton, AB, Canada

Teaching

2021	EDF 6938 ˣ	Introduction to NLP in Education Research	University of Florida
		Instructor, College of Education	*Gainesville, FL, USA*
2020	CMPUT 497/501	Introduction to Natural Language Processing	University of Alberta
		Teaching Assistant, Dept of Computing Science	*Edmonton, AB, Canada*
2020	EDU 210	Introduction to Educational Technology	University of Alberta
		Teaching Assistant, Dept of Educational Psychology	*Edmonton, AB, Canada*
2019	Workshop	Introduction to Machine Learning with Python	University of Alberta
		Instructor (Campus-wide)	*Edmonton, AB, Canada*
2017-2018	EDPY 500	Introduction to Data Analysis in Education Research	University of Alberta
		Teaching Assistant, Dept of Educational Psychology	*Edmonton, AB, Canada*
2017	EDPY 303	Educational Assessment	University of Alberta
		Teaching Assistant, Dept of Educational Psychology	*Edmonton, AB, Canada*

ˣ *cancelled*

Academic Service
Professional Membership

2021-	American Education Research Association (AERA)	*Member*
2021-	National Council on Measurement in Education (NCME)	*Member*
2021-	Canadian Educational Researchers' Association (CERA)	*Member*

Editorial Services

Scientific Report, Nature	*Reviewer*

Language Testing
Assessing Writing
Journal of Science Education and Technology
Journal of Research on Technology in Education
Frontiers in Education / Frontiers in Educational Psychology

Conference Volunteer

National Council on Measurement in Education, 2019 Annual Meeting, Toronto, ON
International Conference on Language and Social Psychology (16th), Edmonton, AB
The G.M. Dunlop Conference Annual Meeting, Edmonton, AB