Heeryung Choi, Ph.D.

Curriculum Vitae

CONTACT INFORMATION

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US Permanent Resident

EDUCATION

Ph.D. in Information with Data Science Certificate Sep 2016–Apr 2022
University of Michigan Ann Arbor, MI, USA
Dissertation: SRLA: Self-Regulated Learning Analytics
Advisor: Professor Christopher Brooks
Committee: Professors Philip H. Winne, Stephanie Teasley, and Andrew Krumm

M.S. in Engineering (Cognitive Science) Mar 2014–Aug 2016
Seoul National University Seoul, South Korea
Advisor: Professor Joonhwan Lee

B.A. in English Language Education Mar 2009–Feb 2014
Seoul National University Seoul, South Korea
Summa Cum Laude

PROFESSIONAL APPOINTMENTS

Postdoctoral Research Associate Aug 2024–Aug 2025
University of Minnesota, Department of Educational Psychology Minneapolis, MN, USA
Conducted data mining on institution-wide student data from learning management system interactions (Unizin, Canvas) to identify longitudinal self-regulated learning behavior patterns and their impacts on retention and learning performance.
Developed a codebook and conducted open coding on online math tutoring for K-12 students, guided by self-regulated learning theory.
Supervisors: Professors Panayiota (Pani) Kendeou and Caitlin Mills

Research Fellow May 2024–Aug 2024
University of Michigan, School of Information Ann Arbor, MI, USA
Investigated the impact of reflection on students' mindful use of AI-generated hints and their performance using field experiments and mixed methods.
Supervisor: Professor Christopher Brooks

Digital Learning Postdoctoral Associate May 2022–Apr 2024
Massachusetts Institute of Technology, Cambridge, MA, USA
Center for Transportation and Logistics
Led an interdisciplinary research collaboration to develop a learning analytics dashboard supporting self-regulated learning for over 10,000 learners in the MITx MicroMasters Program.
Supervisors: Drs. Eva Ponce-Cueto and Inma Borrella

GRANTS

Principal Investigator, Spencer Foundation Small Research Grant (Not funded) Apr 2025

Primary grant author, MIT Integrated Learning Initiative Learning Effectiveness Grant (Funded, USD 50,000) 2022–2023

HONORS AND AWARDS

Outstanding Graduate Student Instructor of the Year 2020–2021
Samsung PhD Scholarship (5 years) 2016–2020
Korean National Research Scholarship 2015
Graduated Summa Cum Laude 2014
Seoul National University Merit Scholarship 2011–2013

PUBLICATIONS

Peer-reviewed Journal Papers

Choi, H., co-authors. (under review). Reflection-Satisfaction Tradeoff: Investigating Impact of Reflection on Student Engagement with AI-Generated Programming Hints, *submitted to a journal.*

Choi, H., Jovanovic, J., Poquet, S., Brooks, C., Joksimovic, S., & Williams, J. J. (2023). The Benefit of Reflection Prompts Encouraging Learning with Hints in Programming Education. *The Internet and Higher Education, 58,* 100903.

Brooks, C., Quintana, R. M., **Choi, H.**, Quintana, C., NeCamp, T., & Gardner, J. (2021). Towards Culturally Relevant Personalization at Scale: Experiments with Data Science Learners. *International Journal of Artificial Intelligence in Education, 31*(3), 516-537.

Peer-reviewed Conference Proceedings

Choi, H., Steadman, C., Mills, C., & Kendeou., P. (in press). From Clicks to Insights: Exploring Self-Regulated Learning Behaviors Longitudinally Using Institutional Data. In *Proceeding of 2026 American Educational Research Association (AERA) Annual Meeting*, Los Angeles, CA.

Phung, T., **Choi, H.**, Wu, M., Brooks, C., Gulwani, S., & Singla, A. (in press). Closing The Loop: An Instructor-In-The-Loop AI Assistance System for Supporting Student Help-Seeking in Programming Education. In *Proceedings of the 57th ACM Technical Symposium on Computer Science Education (SIGCSE).* ***Awarded Best Paper***

Phung, T., **Choi, H.**, Wu, M., Singla, A., & Brooks, C. (2025). Plan More, Debug Less: Applying Metacognitive Theory to AI-Assisted Programming Education. In *Proceedings of the 26th International Conference on Artificial Intelligence in Education (AIED).* Springer Nature Switzerland.

Phung, T., Wu, M., **Choi, H.**, Soares, G., Gulwani, S., Singla, A., & Brooks, C. (2025). Bridging Gaps Between Student and Expert Evaluations of AI-Generated Programming Hints. In *Proceedings of the Twelfth ACM Conference on Learning @ Scale (L@S)* (pp. 241-245).

Singh, A., Fariha, A., Brooks, C., Soares, G., Henley, A., Tiwari, A., M, Chethan., **Choi, H.**, & Gulwani, S. (2024). Investigating Student Mistakes in Introductory Data Science Programming. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education (SIGCSE).*

Choi, H., Borrella, I., & Ponce-Cueto, E. (2023). Meta-LAD: Developing a Learning Analytics Dashboard with Theoretically Grounded and Context-Specific Approaches. In *Proceedings of the 9th IEEE Learning with MOOCs (LWMOOCs).* ***Nominated for Best Paper***

Choi, H., Winne, P. H., Brooks, C., Li, W., & Shedden, K. (2023). Logs or Self-Reports? Misalignment Between Behavioral Trace Data and Surveys When Modeling Learner Achievement Goal Orientation. In *Proceedings of the 13th International Conference on Learning Analytics & Knowledge (LAK).*

Choi, H., Mills, C., Brooks, C., Doherty, S.,& Singh, A. (2022). Design Recommendations for Using Textual Aids in Data-Science Programming Courses. In *Proceedings of the 53rd ACM Technical Symposium on Computer Science Education (SIGCSE).*

Choi, H., Dowell, N., Brooks, C., & Teasley, S. (2019). Social Comparison in MOOCs: Perceived SES, Opinion, and Message Formality. In *Proceedings of the 9th International Conference on Learning Analytics & Knowledge (LAK)* (pp. 160-169).

Yan, W., Dowell, N., Holman, C., Welsh, S. S., **Choi, H.**, & Brooks, C. (2019). Exploring Learner Engagement Patterns in Teach-Outs Using Topic, Sentiment and On-Topicness to Reflect on Pedagogy. In *Proceedings of the 9th International Conference on Learning Analytics & Knowledge (LAK)* (pp. 180-184).

Lin, Y., Dowell, N., Godfrey, A., **Choi, H.**, & Brooks, C. (2019). Modeling Gender Dynamics in Intra and Interpersonal Interactions During Online Collaborative Learning. In *Proceedings of the 9th International Conference on Learning Analytics & Knowledge (LAK)* (pp. 431-435).

Book Chapter

Choi, H., Winne, P. H., & Brooks, C. (2023). Reconfiguring Measures of Motivational Constructs Using State-Revealing Trace Data. In V. Kovanovic, R. Azevedo, D. C. Gibson, & D. Ifenthaler (Eds.), *Unobtrusive Observations of Learning in Digital Environments: Examining Behavior, Cognition, Emotion, Metacognition and Social Processes Using Learning Analytics* (pp. 7389). Cham: Springer International Publishing.

Teaching Experience

Primary Instructor/Course Lead

SC0x: Supply Chain Analytics (online credential, 3,000+ students) 2022–2024
SIADS 505: Data Manipulation (online degree, 20+ students) 2021

Teaching Assistant 2018–2021
SIADS 521: Visual Exploration of Data (online degree, 240+ graduate students)
SIADS 505: Data Manipulation (online degree, 270+ graduate students)
SI 630: Natural Language Processing: Algorithms and People (residential, 70+ graduate students)
SI 671: Data Mining (residential, 50+ graduate students)

Presentations

Peer-reviewed Presentations

Choi, H., Steadman, C., Mills, C., & Kendeou., P. (2025). Designing Theory-Guided Log Indicators of Self-Regulated Learning During Academic Challenges. In *National Consortium for Instruction and Cognition Annual Meeting 2025 (NCIC).*

Peer-reviewed Workshops and Poster

Choi, H., Brooks, C., Hayward, C., Kitto, K., Gasevic, D., Pardo, A., Winne, P., & Heffernan., N. (2021). Engineering Learning Analytics Technology Environments (ELATE): Understanding Iteration Between Data and Theory, and Design and Deployment. In *The 11th international conference on learning analytics & knowledge (LAK).*

Choi, H., Dowell, N., Brooks, C., & Teasley, S. (2019). Social Comparison in MOOCs: Perceived SES, Opinion, and Message Formality. In *The 9th International Conference on Learning Analytics & Knowledge (LAK)* (pp. 160-169).

Choi, H., Wang, Z., Brooks, C., Collins-Thompson, K., Reed, B. G., & Fitch, D. (2017). Social Work in The Classroom? A Tool to Evaluate Topical Relevance in Student Writing. In *The 10th International Conference on Educational Data Mining (EDM)* (p. 386).

Choi, H., Brooks, C., & Collins-Thompson, K. (2017). What Does Student Writing Tell Us about Their Thinking on Social Justice?. In *The 7th International Conference on Learning Analytics & Knowledge (LAK)* (pp. 594-595).

Invited Talks

Choi, H. (2025, Jan). Do You Know What You Want to Know From Data? Insights From Log and Survey Data to Capture Different Aspects of Goals, *Technical University of Munich, Munich Data Science Institute and School of Social Sciences and Technology.*

Choi, H. (2024, Dec). Interpreting Student Interaction with AI-Generated Hints and Reflection Prompts, *University of Minnesota, Department of Educational Psychology.*

Choi, H. (2023, Oct). Advancing Learning Analytics: Insights From Trace and Survey Data on Self-Regulated Learning, *Cornell University, Ann S. Bowers College of Computing and Information Science.*

Choi, H. (2023, Aug). Upskilling SCM Professionals Through Online Learning, *Massachusetts Institute of Technology, Center for Transportation and Logistics Monthly Research Briefing.*

Choi, H. (2023, Mar). Survey or Trace Data?: Steps to Understand Self-Regulated Learning Better, *Syracuse University, School of Education.*

Choi, H. (2023, Jan). Meta-LAD: A Dashboard Supporting Self-Regulated Learning, *Massachusetts Institute of Technology, Open Learning, MITx Digital Learning Lab.*

Choi, H. (2022, Oct). Interviewed for INFO 4100 Learning Analytics, *Cornell University, Department of Information Science.*

Choi, H. (2021, Oct). Using Data to Understand Self-Regulated Learning, *Massachusetts Institute of Technology, Center for Transportation and Logistics.*

Choi, H. (2021, May). Engineering Learning Analytics Technology Environments (ELATE), *University of Michigan, Center of Academic Innovation.*

Service

Conference Organizing Committee

Poster & Demo Track Chair — 2024–2025
International Conference on Educational Data Mining 2025 (EDM' 25)
Poster & Demo Track Chair — 2023–2024
International Conference on Educational Data Mining 2024 (EDM' 24)

Peer Review (Journals)

Metacognition and Learning — 2024–Present
British Journal of Educational Technology (BJET) — 2022–Present
International Journal of Artificial Intelligence in Education (IJAIED) — 2020–Present
Journal of Learning Analytics (JLA) — 2019–Present

Peer Review (Conference Program Committees)

ACM Learning @ Scale Conference (L@S) — 2025–Present
Technical Symposium on Computer Science Education (SIGCSE) — 2024–Present
International Educational Data Mining Conference (EDM) — 2024–Present
American Educational Research Association (AERA) Annual Meeting — 2023–Present
Learning with MOOCs (LwMOOCs) — 2023
Artificial Intelligence in Education Conference (AIED) — 2020–Present
ACM Learning Analytics and Knowledge Conference (LAK) — 2016–Present

Peer Review (Grants)

Society for Learning Analytics Research Early Career Grant — 2023

Leadership

Organized a graduate research competition in collaboration with Big Picture Learning, a non-profit organization — 2025, University of Minnesota
Organized a job panel featuring international scholars on academic careers beyond the USA — Spring 2025, University of Minnesota
Member, Working Group of Society for Learning Analytics Research (SoLAR) — 2019–Present
Doctoral Executive Committee Member of School of Information — 2017–2018, University of Michigan

Media Coverage

New dashboard supports online learners' self-regulated learning and performance — Oct 2023, MIT Open Learning

References

Caitlin Mills, Ph.D.
Associate Professor
Department of Educational Psychology
University of Minnesota
Minneapolis, MN, USA
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Christopher Brooks, Ph.D.
Associate Professor
School of Information
University of Michigan
Ann Arbor, MI, USA
brooksch@umich.edu

Philip H. Winne, Ph.D.
Professor Emeritus
Faculty of Education
Simon Fraser University
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Oleksandra Poquet, Ph.D.
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