

# Heeryung Choi, Ph.D.

## Curriculum Vitae

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|---------------------------|--|---|
| CONTACT INFORMATION       | heeryung@umich.edu<br>www.linkedin.com/in/heeryung   | US Permanent Resident   |
| EDUCATION                 | <b>Ph.D. in Information with Data Science Certificate</b><br><b>University of Michigan</b><br>Dissertation: SRLA: Self-Regulated Learning Analytics<br>Advisor: Professor Christopher Brooks<br>Committee: Professors Philip H. Winne, Stephanie Teasley, and Andrew Krumm<br><b>M.S. in Engineering (Cognitive Science)</b><br><b>Seoul National University</b><br>Advisor: Professor Joonhwan Lee<br><b>B.A. in English Language Education</b><br><b>Seoul National University</b><br>Summa Cum Laude  | Sep 2016–Apr 2022<br>Ann Arbor, MI, USA<br><br>Mar 2014–Aug 2016<br>Seoul, South Korea<br><br>Mar 2009–Feb 2014<br>Seoul, South Korea   |
| PROFESSIONAL APPOINTMENTS | <b>Postdoctoral Research Associate</b><br><b>University of Minnesota, Department of Educational Psychology</b><br>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.<br>Developed a codebook and conducted open coding on online math tutoring for K-12 students, guided by self-regulated learning theory.<br>Supervisors: Professors Panayiota (Pani) Kendeou and Caitlin Mills<br><b>Research Fellow</b><br><b>University of Michigan, School of Information</b><br>Investigated the impact of reflection on students' mindful use of AI-generated hints and their performance using field experiments and mixed methods.<br>Supervisor: Professor Christopher Brooks<br><b>Digital Learning Postdoctoral Associate</b><br><b>Massachusetts Institute of Technology, Center for Transportation and Logistics</b><br>Led an interdisciplinary research collaboration to develop a learning analytics dashboard supporting self-regulated learning for over 10,000 learners in the MITx Micro-Masters Program.<br>Supervisors: Drs. Eva Ponce-Cueto and Inma Borrella | Aug 2024–Aug 2025<br>Minneapolis, MN, USA<br><br>May 2024–Aug 2024<br>Ann Arbor, MI, USA<br><br>May 2022–Apr 2024<br>Cambridge, MA, USA |
| GRANTS                    | Principal Investigator, Spencer Foundation Small Research Grant (Not funded)<br>Primary grant author, MIT Integrated Learning Initiative Learning Effectiveness Grant (Funded, USD 50,000)   | Apr 2025<br>2022–2023   |
| HONORS AND AWARDS         | Outstanding Graduate Student Instructor of the Year<br>Samsung PhD Scholarship (5 years)<br>Korean National Research Scholarship<br>Graduated Summa Cum Laude<br>Seoul National University Merit Scholarship   | 2020–2021<br>2016–2020<br>2015<br>2014<br>2011–2013   |
| PUBLICATIONS              | <b>Peer-reviewed Journal Papers</b><br><b>Choi, H.</b> , co-authors. (under review). Reflection-Satisfaction Tradeoff: Investigating Impact of Reflection on Student Engagement with AI-Generated Programming Hints, <i>submitted to a journal</i> .<br><b>Choi, H.</b> , Jovanovic, J., Poquet, S., Brooks, C., Joksimovic, S., & Williams, J. J. (2023). The Benefit of Reflection Prompts Encouraging Learning with Hints in Programming Education. <i>The Internet and Higher Education</i> , 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-Topicity 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.

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| 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)  |  |
|                | <b>Peer Review (Journals)</b>   |  |
|                | 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   |
|                | <b>Peer Review (Conference Program Committees)</b>  |  |
|                | 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   |
|                | <b>Peer Review (Grants)</b>   |  |
|                | Society for Learning Analytics Research Early Career Grant  | 2023   |
|                | <b>Leadership</b>   |  |
|                | Organized a graduate research competition in collaboration with   | 2025   |
|                | Big Picture Learning, a non-profit organization   | University of Minnesota  |
|                | Organized a job panel featuring international scholars  | Spring 2025  |
|                | on academic careers beyond the USA  | University of Minnesota  |
|                | Member, Working Group of  | 2019–Present   |
|                | Society for Learning Analytics Research (SoLAR)   |  |
|                | Doctoral Executive Committee Member of  | 2017–2018  |
|                | School of Information   | University of Michigan   |
| MEDIA COVERAGE | New dashboard supports online learners' self-regulated learning and performance   | Oct 2023<br>MIT Open Learning  |
| REFERENCES     | <b>Caitlin Mills, Ph.D.</b><br>Associate Professor<br>Department of Educational Psychology<br>University of Minnesota<br>Minneapolis, MN, USA<br>cmills@umn.edu | <b>Christopher Brooks, Ph.D.</b><br>Associate Professor<br>School of Information<br>University of Michigan<br>Ann Arbor, MI, USA<br>brooksch@umich.edu                                     |
|                | <b>Philip H. Winne, Ph.D.</b><br>Professor Emeritus<br>Faculty of Education<br>Simon Fraser University<br>Burnaby, BC, Canada<br>winne@sfu.ca                   | <b>Oleksandra Poquet, Ph.D.</b><br>Professor in Learning Analytics<br>School of Social Sciences and Technology<br>Technical University of Munich<br>Munich, Germany<br>sasha.poquet@tum.de |