Taehyun Kim
Curriculum Vitae

E-mail: thk4@illinois.edu
Homepage: http://taehyun-ls.weebly.com

Education

2019.08 – ongoing   GPA: 3.96/4.0
Ph.D. Candidate, College of Education, University of Illinois at Urbana-Champaign (UIUC), USA
Advisor: Dr. Robb Lindgren | Co-Advisor: Dr. Mike Tissenbaum

2019.02
M.Ed. in Education, Sungkyunkwan University (SKKU), S. Korea
Advisor: Dr. Jangwan Ko & Dr. Moon-Heum Cho   GPA: 4.31/4.5
Master's Thesis: Developing immersive Virtual Reality with Multimedia Learning Theory: Its Effectiveness on Middle School Students' Learning Outcomes and Motivation

2017.02
B.A. in Educational Technology, Andong National University (ANU), S. Korea
Advisor: Dr. Sangho Song   GPA: 4.08/4.5
Bachelor's Thesis: Analysis of the Recent Trends in the Middle School Free-semester Interdisciplinary Courses

Research Interests

Immersive Learning Design, Embodied Learning, Computer-supported Collaborative Learning, Emerging Technologies for Learning, Multimodal Learning Analytics, Educational Data Mining, Emotion &Learning

Publication

Peer-Reviewed Journal Article

Kim, T., & Tissenbaum, M. B. (Under Review). Understanding When Anger Becomes Productive or Destructive in Collaborative Educational Games. *Computers & Education.*

Kim, T., Planey, J., & Lindgren, R. (2023). Theory-Driven Design in Metaverse Virtual Reality Learning Environments: Two Illustrative Cases. IEEE *Transactions on Learning Technologies, 16*(6), 1141-1153.

Planey, J., **Kim, T**., Mercier, E., & Lindgren, R. (2023). Can You See Orion?: Knowledge Construction and Collaborative Discourse While Problem Solving with Virtual Reality. *Interactive Learning Environments*, 1-14.

Kumar, V., Tissenbaum, M. B., & **Kim, T**. (2021). Procedural Collaboration in Educational Games: Supporting Complex System Understandings in Immersive Whole Class Simulations. *Communication Studies, 72*(6), 994-1016.

Kim, T., & Ko, J. W. (2019). The effects of immersive virtual reality learning on middle school students' learning outcomes. *The Journal of Educational Information and Media, 25*(1), 99-120.

Refereed Conference Proceeding

Kim, T., Nisar, H., Lindgren, R., Zhang, J., Tang, X., Lira, M., & Talhan, A. (2024, May). Beyond the Screen: Gestural Perspective-Taking with a Biochemistry Simulation. In *Extended Abstracts of the 2024 CHI Conference on Human Factors in Computing Systems* (pp. 1-6).

Kim, T. (2024). Paper or Virtual Reality First? The Impact of Material Sequence on Science Learning Outcomes. In *18th International Conference of the Learning Sciences (ICLS)* 2024, 1-4.

Kim, T., Planey, J., & Lindgren, R. (2023). Comparing Virtual and Augmented Reality: Learning and Interaction Effects in Astronomy Classrooms. In *17th International Conference of the Learning Sciences (ICLS) 2023,* 1126-1129.

Kim, T., Planey, J., & Lindgren, R. (2022). The Role of Augmented Reality in Multi-Device Small Group Learning Ecosystems. In *16th International Conference of the Learning Sciences (ICLS) 2022,* 783-790.

Tissenbaum, M., Lindgren, R., Danish, J., **Kim, T**., Zeng, L., Planey, J., ... & Pea, R. (2022). The Role of the Physical Space in Distributed Intelligence. In *15th International Conference on Computer-Supported Collaborative Learning (CSCL)*, 533-540.

Kim, T., Planey, J., Lindgren, R., & Kang, J. (2021). Integrating Immersive Technology into Small Group Learning Environments. In *15th International Conference of the Learning Sciences (ICLS) 2021,* 1137-1138.

Kim, T., Kumar, V., & Tissenbaum, M. B. (2021). Productive anger? Changing systems understanding due to negative emotions. In *15th International Conference of the Learning Sciences (ICLS) 2021,* 1141-1142.

Diederich, M., Kang, J., **Kim, T**., & Lindgren, R. (2021, April). Developing an In-Application Shared View Metric to Capture Collaborative Learning in a Multi-Platform Astronomy Simulation. In *LAK21: 11th International Learning Analytics and Knowledge Conference,* 173–183.

Conference Presentation

Kim, T., & Lindgren, R. (2024). Understanding Student Learning in Immersive VR: Potential of Gesture Speed and Gaze Data, *American Educational Research Association*, Philadelphia , PA.

Kim, T., Planey, J., & Lindgren, R. (2023). Virtual and Augmented Reality Platforms in Astronomy Classrooms: Comparing Usage and Learning in Small Groups, *American Educational Research Association*, Chicago, IL.

Kim, T., & Tissenbaum, M. B. (2023). From Productive Anger to Tilting: Unpacking the effects of Anger in Collaborative Learning Games, *American Educational Research Association*, Chicago, IL.

Planey, J., **Kim, T**., Mercier, E., & Lindgren, R. (2022). Knowledge Construction and Collaborative Discourse While Problem Solving with a Virtual Reality Astronomy Platform, *American Educational Research Association*, San Diego, CA.

Planey, J., Lindgren, R., Kimball, N., **Kim, T**., Mercier, E., & Kang, J. (2022). Facilitating Small-Group Problem Solving in Astronomy Contexts through Augmented Reality, *American Educational Research Association*, San Diego, CA.

Kim, T., Planey, J., Lindgren, R., & Kang, J. (2021). Incorporating Immersive Virtual Reality and Tablet Devices with Group Tasks in Introductory Community College Astronomy, *American Educational Research Association*, Orlando, FL (Hosted online).

Kumar, V., Tissenbaum, M. B., & **Kim, T.** (2021). Procedural Collaboration – Performing Sustainable Interconnectedness through Strategies and Negotiations, *American Educational Research Association*, Orlando, FL (Hosted online).

Kim, T., Lee, J., Kang, J., & Lindgren, R. (2020). Developing Virtual Reality Data Kit for Education Researchers. *Learning Sciences Graduate Student Conference*, Madison, WI (Hosted online).

Kim, T. (2020). Enhancing Learning Outcomes Through Embodied Interaction Within an immersive Virtual Reality (VR) Simulation. *The 2020 College of Education Graduate Student Conference*, Champaign, IL.

Kim, T., & Cho, M.-H. (2018). Developing an immersive Virtual Reality Content Based on Multimedia Learning Theories and Verifying Its Effectiveness. *International Conference of Educational Technology*, Seoul, South Korea.

Lim, S.-M., Cho, M.-H., & **Kim, T**. (2018). Patterns of Parents' Use of Mobile Documentation in Kindergarten. *Society for Information Technology and Teacher Education*. Washington, DC.

Project Experience

Haptic Technology Innovations to Guide Student Gesturing with Dynamic STEM Visualizations,
NSF funded   2023 – present
- Role: Graduate Student Researcher
- This 3-year Research on Emerging Technologies for Teaching and Learning (RETTL) project aims to clarify the role of gesture in grounding STEM learning. The project will accomplish this aim by advancing innovations in haptic technologies and interactive visualizations.

Connections of Earth and Sky with Augmented Reality (CEASAR), **NSF funded**   2019 – 2023
- Role: Graduate Student Researcher
- This 2-year Cyberlearning for Work at the Human-Technology Frontier project aims to transform the way that augmented reality (AR) is used to support small group collaboration with virtual models of scientific systems

City Settlers   2019 – present
- Role: Graduate Student Researcher
- A whole class, embodied and immersive simulation that transforms the physical classroom into a landscape in which groups of students build and sustain their own growing cities

Visualizing and Reflecting on Speech Patterns in Problem-Based Learning Sessions, **PITA funded**
                                                                                          2019 – 2020
- Role: Graduate Student Researcher
- Develop human voice detection algorithm
- Develop visualizations of speech activity patterns during Problem-Based Learning (PBL) sessions
- Create a Professional Learning Community (PLC) in which facilitators engage in reflection and peer discussion of the visualizations from their PBL sessions

ChromosoME, **TIER-ED Fellowship funded**   2019 – present
- Role: Principal Investigator & Lead Developer
- This is an interactive virtual reality (VR) simulation of cell division powered by Oculus Quest, which is a headset VR device that allows full hand tracking without any other external sensors. The simulation presents an accurate representation of the process of mitosis. While users are playing the simulation, it is accompanied by an interactive user interface that offers basic instructions and presents data within the simulation on a learner's performance for review and to inform subsequent activity.
- The aim is to make the learner's hands become a part of actual mitosis process in order to participate in what they are trying to understand.

Personal Projects: Developing games for fun using Unity   2017 – present
- Solar system defense: Samsung Gear Virtual Reality ver.
- Learning Solar Planets: Oculus Rift CV1 ver.
- Other games: shooting, racing, RPG, etc.

Teaching Experience

University of Illinois at Urbana-Champaign, USA   2023.08 – 2023.12
Teaching Assistant for Introduction to Digital Learning Environments (undergraduate level)
- Lead a 2-hour in-person discussion session weekly
- Build a student group presentation scoring rubric
- Manage the course on Canvas

University of Illinois at Urbana-Champaign, USA   2023.03 – 2023.5
Teaching Assistant for Critiques of Educational Technologies (undergraduate senior & graduate level)
- Facilitator for Zoom breakout session discussions during class
- Grading undergraduate assignments

Sungkyunkwan University, S. Korea   2017.09 – 2017.12
Teaching Assistant for Instructional Systematic Design (undergraduate level)
- Developed lesson materials (PPT slide)
- Made rubrics for the assignments and graded papers/exams
- Gathered teacher employment examination questions related to educational technology

Sungkyunkwan University, S. Korea   2018.03 – 2018.06
Teaching Assistant for Instructional Methods and Educational Technology (undergraduate level)
- Facilitated and demonstrated immersive virtual reality unit
- Developed rubrics for assignments and graded papers/exams
- Served as proctor for mid/final exam

Andong Public High School, S. Korea   2016.04 – 2016.05
Preliminary Teacher, Ethics
- Applied Keller's motivation theory to help students to enjoy class; used the strategies of attention and satisfaction to enable students to discover their own interests
- Provided career counseling to students
- Participated an intramural athletic meet
- Served as proctor for mid-term exam

Honors, Grants, and Awards

Ray H. Simpson Scholarship   2023.08 – 2024.05

iSAT Trainee Grant ($2,500)   2022.09 – 2023.08
- Project title: Enabling Automatic Speaker Identification Using Direction of Arrival

TIER-ED Fellowship ($20,000)   2020.08 – 2021.05
  - Project title: Design and Implementation of an Embodied Virtual Reality Simulation to Learn Cell Division

Augmented & Virtual Reality Developer Grand Challenge, South Korea   2018.09
Final entries
  - Immersive virtual reality content "Learning Solar Plants: Oculus Rift CV1 ver." gained entry into the final round, where a total of 14 teams were selected from all over the country

Start-Up Championship Using Public Data Set, South Korea   2015.11
Prime Minister Award (Approx. $7,000)
  - Project title: Educational app for public ecological parks using public data set

Professional Experience

Korea Educational Technology Research Institution, S. Korea   2018.09 – 2019.06
Lecturer, strengthening employment capacity "Join Challenge" at Chonnam National University
  - Provided strategy of winning the nationwide scale contest
  - Taught how to collect and refine key data and make reasonable decisions based on the data

Completed Augmented Reality and Virtual Reality Content Developer's Training Course 2017
National Competency Standard Program, Acorn Technology Lab (**3.7 months, 600 hours**)
  - A government-certified, intermediate level augmented reality and virtual reality developer course

Graduate School of Business, Sungkyunkwan University, S. Korea   2017.12 – 2019.02
Canvas (LMS) Coordinator
  - Took charge of introducing the Canvas learning management system
  - Drew a roadmap on how to build a student database and manage courses by semester
  - Automated Canvas through the characteristic functions of Canvas, including SIS import
  - Provide technical support for Canvas to faculty members

BK21 Plus, Ministry of Education (SKKU Educational Informatics Team), S. Korea   2017.03 – 2018.08
Researcher
  - Wrote 2018 BK21 Plus performance review report for Sungkyunkwan University

Korea Performance Improvement Center, Andong National University, S. Korea   2014.09 – 2016.08
Student Researcher
  - Designed storyboard for ASEAN University Network
  - Translated ASEAN University Network storyboard manuscripts
  - Analyzed report about discovery learning
  - Performed needs analysis for Andong English Village

ASEAN Cyber University Project, Internship at Uni-performance, S. Korea   2014.07 – 2014.08
Assistant Technology Coach
  - Trained online learning environment designers from five Southeast Asian countries: Philippines, Myanmar, Vietnam, Laos, and Cambodia
  - Coached on how to produce video lectures using Adobe PowerPoint (PPT)

Professional Outreach

Committee Member of Learning Sciences Graduate Student Conference   2021.03 – 2021.11
Branding and Communication - Website management, Logo design, Zoom background image design

Saem-tteul Community Child Center, Andong, S. Korea   2016.07 – 2016.12
Teacher, teaching Korean language and mathematics to children in multicultural families; because most of them showed lower academic achievement and concentration than their peers, mainly focused on figuring out each of the children's learning deficits and interests

Gilju Middle School, Andong, S. Korea   2014.09 – 2014.12
Mentor, teaching English to a student who had a car accident in elementary school and had a disability that affected his language skills; tried to teach him through videos and pictures because he struggled to learn with books; applied gamification factors, such as badges, to maintain his motivation

Professional Affiliations

American Educational Research Association (AERA)
International Society of the Learning Sciences (ISLS)
International Learning Analytics and Knowledge Conference (LAK)
Learning Sciences Graduate Student Conference (LSGSC)