Jaeseo Lim

CONTACT INFORMATION

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EDUCATION

Seoul National University Sep 2019 –
Ph.D Student in Cognitive Science
Advisor: Prof. Jooyong Park
GPA: 4.3/4.3

Seoul National University Sep 2017 – Aug 2019
Advisor: Prof. Jooyong Park
M.S. in Cognitive Science
GPA: 4.3/4.3

Yonsei University Mar 2011 – Aug 2017
B.A. in Psychology
GPA: 3.94/4.3

B.A. in English Language and Literature
GPA: 4.07/4.3

RESEARCH EXPERIENCE

Memory Laboratory, SNU Sep 2017 – Aug 2023
Master, Doctoral student
Advisor: Prof. Jooyong Park
Department of Psychology, Seoul National University (SNU), Seoul, Korea

CURRENT RESEARCH INTERESTS

I am basically a cognitive learning scientist in how students learn, and was trained originally as a cognitive psychologist. Broadly I investigate the question of how students better learn concepts introduced in instructional texts. One line of my studies examines ways to improve students learning in small group. This has included demonstrating how students can learn better by active-learning, individual preparation before collaboration and understanding why discussion is an effective instructional strategy from the students perspective, rather than the perspective of the instructors.

Currently, my overarching interest is in understanding how (secondary or undergraduate) students learn complex concepts in STEM (Science Technology Engineering and Mathematics) domains, as well as in ways to improve their learning. Of course, understanding how students learn has direct implications for how instructors can teach to optimize students learning. I use both quantitative and qualitative methods. To achieve these goals, I use psychological experiment, computational modeling, and machine learning techniques.

Aside from the work, I have several lines of active research in educational technology and cognitive engineering using deep learning techniques. Based on the hypothesized underlying cognitive processes, I compared passive learning with active learning in text classification tasks of machine. Furthermore, I created novel ensemble techniques inspired human discussion model.

Another direction of research is a focus on how to enhance engagement when students work in groups. More specifically, We also haven't yet figured out how to overcome the challenge of how teachers can monitor and help scaffold students for productive collaboration. So, I seek to figure out how to help teachers understand that quality classroom discussion requires not just having the right conditions for discussion, but that students need to engage in certain types of dialogue patterns, and cognitively engaged behaviors.

JOURNAL ARTICLES

Lim, J., Shin, Y., Lee, S, Chun, M-S., Park, J., & Ihm, J. (2023). Improving learning effects of student-led and teacher-led discussion contingent on prediscussion activity. *The Journal of Experimental Education*, 1-18.

Lim, J., & Park, J. (2023). Self-study enhances the learning effect of discussions. *Journal of the Learning Sciences*, 1-22.

Shin, Y., **Lim, J.**, Kim, Y., Seo, D-G., & Ihm, J. (2022). Effects of virtual body-representation on motor skill learning. *Scientific Report*, *12*(1), 15283.

Park, J. A., Song, M. A., **Lim, J.**, & Park, J. (2022). Two Faces of Grit-Perseverance: Is It Always Good to Exert Grit? *Journal of Cognitive Psychology*, *34*(8), 1-12.

Lim, J., Ko, H., Park, J., & Ihm, J. (2022). Effect of active learning and online discussions on the academic performances of dental students. *BMC Medical Education, 22*(1), 1-9.

Lim, J., Ko, H., Yang, J. W., Kim, S., Lee, S., Chun, M. S., ... & Park, J. (2019). Active learning through discussion: ICAP framework for education in health professions. *BMC Medical Education, 19*(1), 1-8.

Kim, S., Yang, J. W., **Lim, J.**, Lee, S., Ihm, J., & Park, J. (2021). The impact of writing on academic performance for medical students. *BMC Medical Education, 21*(1), 1-8.

CONFERENCE PAPERS

Son, S., **Lim, J.**, Jang, Y., LEE, J., & Zhang, B. T. Learning to Write with Coherence From Negative Examples. ArXiv:2209.10922

Lim, J. Lee J., Park, J., & Kim, C. (2022). Emotion Evaluator: Expanding the Affective Lexicon with Neural Network Model. *In Proceedings of the 44th Annual Meeting of the Cognitive Science Society, July, 2022. (co-first author*)*

Lim, J., Yang, J. W., Lee, J., & Park, J. (2022). The Way to Better Learning Online: Using Online Discussions in College Classes During COVID-19. *The 16th International Conference of the Learning Sciences (ICLS), June, 2022.*

Song, M. H.,**Lim, J**., & Park, J. (2022). The Effect of Weekly Writing and Peer Reviewing Upon Students Writing Competence. *The 16th International Conference of the Learning Sciences (ICLS), June, 2022.*

Lim, J., Jo, H., & Zhang, B. T. (2021). Devil's Advocate: Novel Boosting Ensemble Method from Psychological Findings for Text Classification. *The 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP), 2021. (co-first author*)*

Lim, J., Jo, H., Zhang, B. T. and Park, J. (2021). Passive Versus Active: Frameworks of Active Learning for Linking Humans to Machines. *In Proceedings of the 43rd Annual Meeting of the Cognitive Science Society, July, 2021. (co-first author*)*

Lim, J., Jo, H., Zhang, B. T., & Park, J. (2020). Human-Like Active Learning: Machines Simulating the Human Learning Process. *The 34th Conference on Neural Information Processing Systems (NeurIPS 2020) Workshop on Babymind (**Spotlight Talks**)*

Lazaro, M. J. S., **Lim, J.**, kim, S. H., & Yun, M. H. (2019). Wearable Technologies: Acceptance Model for Smartwatch Adoption among Older Adults. *In Proceedings of the 22nd International Conference on Human-Computer Interaction.*

Kang, G. C., **Lim, J.**, & Zhang, B. T. (2019). Dual Attention Networks for Visual Reference Resolution in Visual Dialog. *Conference on Empirical Methods in Natural Language Processing (EMNLP).*

Kim, T., Kwak, M., Yang, S. H.,**Lim, J.**, & Zhang, B. T. (2019, October). WithDorm: Dormitory Solution for Linking Roommates.*In Proceedings of the 21st International Conference on Human-Computer Interaction with Mobile Devices and Services (pp. 1-6).*

Lim, J., Shin, B., & Park, J. (2019). Discussions: A Medium that Promotes Learning. *In Proceedings of the 83rd Annual Convention of the Japanese Psychological Association (JPA).*

Cho, S., **Lim, J.**, Hickey, C., & Zhang, B. T. (2019). Simulating Problem Difficulty in Arithmetic Cognition Through Dynamic Connectionist Models. *In Proceedings of the 17th Interna-*

tional Conference on Cognitive Modeling (ICCM 2019).

Cho, S., **Lim, J.**, Hickey, C., & Zhang, B. T. (2019). Problem Difficulty in Arithmetic Cognition: Humans and Connectionist Models. *In Proceedings of the 41st Annual Meeting of the Cognitive Science Society.*

Kang, G. C., **Lim, J.**, & Zhang, B. T. (2019). Sequential Attention-based Networks for Visual Reference Resolution in Visual Dialog. *In Proceedings of the 37st information Technology and Industry Prospects (iTIP 2019).*

Kang, G. C., **Lim, J.**, & Zhang, B. T. (2019). Dual Attention Networks for Visual Reference Resolution in Visual Dialog *Conference on Computer Vision and Pattern Recognition (CVPR 2019) VQA and Dialog Workshop.*

Heo, Y. J., On, K. W., Choi, S., **Lim, J.**, Kim, J., Ryu, J. K., ... & Zhang, B. T. (2019). Constructing Hierarchical Q&A Datasets for Video Story Understanding. *AAAI Spring Symposium Series.*

Lim, J., & Park, J. (2019). When Are Discussions More Effective: After a Lecture or Self-Study? *In Proceedings of the 8th Annual International Conference on Cognitive and Behavioral Psychology (CBP).*

MANUSCRIPTS UNDER REVIEW

Lim, J., & Park, J. (under review). Self-Study and Discussion Promote Student Learning in Science Education.

Lim, J., Yang, J. W., Song, M. A., & Park, J. (under review). Self-Study before Discussion Enhances Learning for High School Students.

Lim, J., Shin, Y., Yang, J. W., Song, M. A. & Park, J. (under review). Effects of Manipulating Individual Preparations for Different Classroom Discussion on Student Learning.

Song, M. A., **Lim, J.**, & Park, J. (under review). The Effect of Peer Assessment on Writing Ability in University Classes.

TALKS & PRESENTATION

Passive vs. Active. Frameworks of Active Learning for Linking Humans to Machines
CogSci 2022 local meetup

Optimizing Online Discussions to Promote Learning for Medical Students
The 33rd Association for Psychological Science (APS) Annual Convention

Human-Like Active Learning: Machines Simulating the Human Learning Process
The 34th Conference on Neural Information Processing Systems (NeurIPS 2020) Workshop on Babymind. **(Spotlight Talks)**

Effect of Active Pre-Learning Activities on Humans and Machines
The 42nd Annual Meeting of the Cognitive Science Society (CogSci 2020). **(Poster Presentation)**

Comparing Learning Outcomes After Different Pre-Learning Activities
The 42nd Annual Meeting of the Cognitive Science Society (CogSci 2020). **(Poster Presentation)**

Human-like Memory Architecture for Visual Reference Resolution
The 12nd International Conference on Cognitive Science (ICCS 2019). **(Poster Presentation)**

How to Enhance Discussion Effect on Learning
The 31st Association for Psychological Science (APS) Annual Convention. **(Poster Presentation)**

Grit Can Hurt You
The 31st Association for Psychological Science (APS) Annual Convention. **(Poster Presentation)**

How Learning Method Affect Learning Outcome: Focusing on Discussions in Learning
The 72nd Annual conference on Korean psychological association. **(Poster Presentation)**

GRANTS & SCHOLARSHIPS

AI Young Researcher, Youlchon Nov 2022
AI Applied Research X + AI - Cognitive Science + AI

Ph.D. Student Research Grant, NRF Jun 2021 – May 2023
Basic Science Research Program from the National Research Foundation of Korea (NRF) funded by the Ministry of Education.

Outstanding Ph.D. thesis, SNU May 2022
Excellent Doctoral Thesis Scholarship

Academic Competitive Scholarship, SNU Spring 2020

Academic Competitive Scholarship, SNU Fall 2019

Graduate Scholarship for Basic Science Research, SNU Spring 2019

Graduate Scholarship for Basic Science Research, SNU Spring 2018

HONORS & AWARDS

Visual Dialog Challenge 3rd Place, CVPR 2019 Jun 2019
More info at https://visualdialog.org/challenge/2019

B.A. from Yonsei with Magna Cum Laude Fall 2017

Academic Competitive Scholarship, Yonsei Univ Spring 2011– Fall 2017

Honorable Mention Award, Korean Institute of Intelligent Systems Spring 2016

RESEARCH PROJECTS

Ph.D. Student Research Grant Jun 2021 –
Basic Science Research Program from the National Research Foundation of Korea (NRF) funded by the Ministry of Education.

Principal Investigator

- Working with key stakeholders to define requirements and delivery milestones for research.
- Investigating psychological and behavioral factors associated with attaining and enhancing learning.
- Assisting with empirical research-based data collections and educational technologies initiatives specifically tailored to diverse groups of participants.
- Researching and intervening strategies for understanding factors that create differential access to and quality of learning, as well as the, experiences of those in real-life classrooms.
- Training undergraduate research assistants in qualitative and quantitative research methods and transcribing audio-recorded interviews.

Meta-learning-based efficient learning techniques for drone AI Jan 2022 –
Source Technology Development Project for Artificial Intelligence

Researcher

- Working with key stakeholders to define requirements and delivery milestones for research.
- Providing additional support to researchers with educational or special needs.
- Supporting integration activities via the creation and delivery of technical documentation for research.

AI Data for Life Safety Sep 2020 –
Seoul National University College of Medicine's Project on Medical AI Training Data Construction.

Researcher

- Working with key stakeholders to define requirements and delivery milestones for research.
- Providing additional support to researchers with educational or special needs.
- Supporting integration activities via the creation and delivery of technical documentation for research.

Babymind Apr 2020 –
Babymind is a research project which aims to build infant-mimic neuro-cognitive AI technologies. Our project consists of four sub-teams that are responsible for knowledge integration, vision-audio, language-emotion, and robot-behavior. We are planning to experiment our project in real and virtual-reality-based environments.

Researcher

- Assisting the principal investigator to deliver engaging, informative activities which support the relevant research.
- Providing one-on one support to researcher across a wide variety of psychological domain.
- Providing additional support to undergraduate students with special educational needs or those who Korean is not their first language.
- Monitoring individual undergraduate student performance, highlighting any students that appear to require additional academic support to the project manager.

Video Turing Test (VTT) Mar 2018 – Jan 2020
The Video Turing Test desires to test a machines ability of intelligent behavior in regards to observing and understanding video input and thereby its video intelligence. A machine capable of this task would prove human-like video understanding capabilities that could open the world of AI to a whole new possibilities in human-like long-term adaptive learning.

Researcher

- Assisting the project manager to deliver engaging, informative activities which support the relevant research.
- Providing one-on one support to researcher across a wide variety of psychological domain.
- Providing additional support to undergraduate students with special educational needs or those who Korean is not their first language.

The Competency Modeling for the Dental Students Oct 2018 - Sep 2019
The study aims to create a model that will help select dentistry students through the approach of behavioral dentistry.

Researcher

- Assisting the principal investigator to deliver engaging, informative activities which support the relevant research.
- Providing one-on one support to researcher across a wide variety of psychological domain.

- Structuring competency models for selection of dental students.
- Translating a questionnaire for Korean, and Plan an experiment.

Analysis for College Syllabus to Improve Classes Feb - May 2018
The study analyzes the syllabus on all lectures at Seoul National University. Through a survey conducted by students and professors, we would like to draw policy suggestions on how to improve the teaching style.

Project Manager

- Working with key stakeholders to define requirements for research.
- Collecting and analyze all syllabuses within a university.
- Investigating psychological factors associated with attaining propose of research.
- Assisting with empirical research-based data collections and educational technologies initiatives.
- Researching and intervening strategies for understanding factors that create differential access to and quality of learning outcomes, as well as the, syllabus of a college.
- Training undergraduate research assistants in qualitative and quantitative research methods and transcribing audio-recorded interviews.

TEACHING EXPERIENCE

Teaching Assistant Spring 2019
Introduction to Cognitive Science

- Assisting the professor to deliver engaging, informative classroom activities which support the relevant curriculum.
- Providing one-on one support to students across a wide variety of subject.
- Providing additional support to students with special educational needs or those who Korean is not their first language.
- Monitoring individual student performance, highlighting any students that appear to require additional academic support to the professor.
- Organizing and maintaining the classroom inventory including, learning materials and resources.

Teaching Assistant Fall 2019
Methodology in Cognitive Science

- Assisting the professor to deliver engaging, informative classroom activities which support the relevant curriculum.
- Providing one-on one support to students across a wide variety of subject.
- Delivering and supervising small group activities, accurately assessing their impact on individual students
- Providing additional support to students with special educational needs or those who Korean is not their first language.
- Monitoring individual student performance, highlighting any students that appear to require additional academic support to the professor.
- Organizing and maintain the classroom inventory including, learning materials and resources.
- Producing accurate records and reports when requested by the wider staff team.

Teaching Assistant Spring 2020
Introduction to Cognitive Science

- Lecturing students on recent trends in psychological research.
- Assisting the professor to deliver engaging, informative classroom activities which support the relevant curriculum.
- Providing one-on one support to students across a wide variety of subject.

- Providing additional support to students with special educational needs or those who Korean is not their first language.
- Monitoring individual student performance, highlighting any students that appear to require additional academic support to the professor.
- Organizing and maintaining the classroom inventory including, learning materials and resources.

Teaching Assistant Fall 2020
Methodology in Cognitive Science

- Lecturing students on recent trends in psychological research.
- Presenting a recently published my own paper to students.
- Assisting the professor to deliver engaging, informative classroom activities which support the relevant curriculum.
- Providing one-on one support to students across a wide variety of subject.
- Delivering and supervising small group activities, accurately assessing their impact on individual students
- Monitor individual student performance, highlighting any students that appear to require additional academic support to the professor.
- Organizing and maintaining the classroom inventory including, learning materials and resources.
- Producing accurate records and reports when requested by the wider staff team.

PROFESSIONAL SERVICE

- Cognitive Science Society
- BMC Medical Education

REFERENCES

Dr. Park, Jooyong (Master's and Doctoral Advisor)
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Dr. Zhang, Byoung-Tak
Professor
School of Computer Science and Engineering, Seoul National University
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Dr. Ihm, Jungjoon
Associate Professor
School of Dentistry, Dental Research Institute, Seoul National University
email: btzhang@bi.snu.ac.kr