

Yongwan Cho

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Education

Kalamazoo College

GPA: 3.96 / 4.00

Bachelor of Arts in Computer Science

Expected graduation on Mar 2025

Bachelor of Arts in Mathematics

Expected graduation on Mar 2025

Honors: *summa cum laude*

Research Experience

Hough Foundation Senior Integrated Project

Jun 2024 - Nov 2024

Kalamazoo College

Kalamazoo, MI

A Systematic Review of Knowledge Tracing and Large Language Models in Education: Opportunities, Issues, and Future Research

Yongwan Cho, Rabia Embamed AlMamlook and Tasnim Gharaibeh

- Served as lead author on a systematic review of 67 research papers, examining how LLMs can enhance educational applications and address limitations in existing KT models.
- Explored LLM customization techniques such as in-context learning and agent-based approaches to handle complex and imbalanced educational data.
- Found that LLMs can improve the performance of KT models and address issues like cold-start problems through generating relevant features from question data.
- Identified limitations in existing LLMs and KT models, including reliance on structured and limited datasets, which restrict their ability to unlock deeper insights into learners and support broader educational applications

“Knowledge Tracing Meets Large Language Models”

Nov 2024

- Poster presentation, the **2024 WMRUGS Research Conference** at Van Andel Institute

Hearst Foundations Undergraduate Research Fellowship

Jun 2023 - Aug 2023

Kalamazoo College

Kalamazoo, MI

Advisor: Prof. Tasnim Gharaibeh, Computer Science Department

- Leveraged the ScienceDirect Search API to source relevant scientific literature, streamlining the input pipeline for ChemDataExtractor.
- Applied ChemDataExtractor, a NLP toolkit, to automate the extraction of magnetocaloric compounds from scientific papers, enhancing data availability for materials science research.

“Computer Science and Learning Science”

Aug 2023

- Poster presentation, the **Fostering Innovation in Rising Experts Symposium** at U.S.-Korea Conference

Prospect Research Assistant

Sep 2022 - Aug 2023

Kalamazoo College

Kalamazoo, MI

- Conducted in-depth donor research and managed databases, utilizing data analytics to support fundraising efforts.

Publication

Under review

- Cho, Y., AlMamlook, R. E., & Gharaibeh, T. (2024). *A Systematic Review of Knowledge Tracing and Large Language Models in Education: Opportunities, Issues, and Future Research*. The Journal of Educational Data Mining. <https://doi.org/10.48550/arXiv.2412.09248>

Teaching Experience

Teaching Assistant at Computer Science Department Mar 2023 - Present
Kalamazoo College Kalamazoo, MI

- Graded assignments and provided academic support for Data Structures, Discrete Mathematics, and Design and Analysis of Algorithms, demonstrating expertise in computational and mathematical problem-solving.

Assistant of English as a Second Language Program Jan 2019 - May 2019
Loyola University Chicago Chicago, IL

- Supported language development for ESL students through personalized coaching and structured lessons.

Assistant English Teacher Mar 2017 - Jun 2017
Jin-language School Seoul, South Korea

- Provided translation services between English and Korean.
- Reviewed homework and supervised classroom activities.

Licenses & Certifications

Machine Learning Specialization issued by DeepLearning.AI Aug 2022
Credential ID: 69QYE7NGAP64

Professional Experience

Student Computer Consultant Oct 2022 - Present
Kalamazoo College Kalamazoo, MI

- Delivered technical support and troubleshooting, enhancing campus-wide IT systems and user satisfaction.

Wireless Telecommunications Technician - 1st Armored Brigade Dec 2020 - Jun 2022
The Republic of Korea Army Pocheon, South Korea

- Maintained and repaired communication networks, ensuring seamless operations under demanding conditions.
- Trained junior signalmen on communication equipment and protocols.

Residence Life Desk Attendant May 2019 - Apr 2020
Moody Bible Institute, Chicago Chicago, IL

- Provided security and informational support for 1,600 residents, ensuring smooth campus operations.

Carpenter Jun 2019 - Mar 2020
Moody Bible Institute, Chicago Chicago, IL

- Collaborated on dorm-office renovation projects, including repairs and maintenance.

Assistant for checkup center (physical examination) Sep 2017 - May 2018
Severance Hospital Seoul, South Korea

- Improved patient satisfaction by streamlining ultrasound test processes and providing clear instructions.

Community & Outreach Experience

President of the Running Club	Sep 2024- Present
Kalamazoo College	Kalamazoo, MI
<ul style="list-style-type: none"> - Founded and led the college's first running club, securing official club status by developing and implementing a comprehensive safety protocol. - Organized weekly runs, training sessions, and community races, promoting fitness and well-being among students. 	

Worship Leader	Apr 2023 - Present
Korean Christian Reformed Church	Vicksburg, MI
<ul style="list-style-type: none"> - Led practice sessions and guided the congregation during worship services, coordinating with musicians and technical staff. 	

Volunteer	Jan 2020 - Apr 2020
Cornerstone Community Outreach	Chicago, IL
<ul style="list-style-type: none"> - Regularly assisted in food preparation and distribution for the homeless community. 	

Volunteer	Jan 2015 - Nov 2015
Year of Your Life, a gap year program	South Africa and Lesotho
<ul style="list-style-type: none"> - Assisted community outreach events, provided meals, and led worship services for local homeless communities. 	

Award & Scholarship

Dean's List issued by Kalamazoo College	Sep 2022 - Mar 2024
Hough Foundation SIP Grant issued by the Hough Foundation	Jun 2024
Mama's Heart Scholarship	Aug 2023
issued by Mama's Heart Scholarship Foundation	
Yahweh Scholarship issued by Bethel Scholarship Program	Aug 2023
Hearst Foundations Undergraduate Research Fellowship	Jun 2023
issued by Hearst Foundations	
KSEA Scholarship	May 2023
issued by Korean-American Scientists and Engineers Association	
Passage & Walton Scholarship issued by Kalamazoo College	Sep 2020
Kimbo Scholarship issued by The Korea Daily	Sep 2019