

DAVID Y.J. KIM

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www.linkedin.com/in/daki7711 | [Personal Webpage : https://daki7711.github.io](https://daki7711.github.io) | US/Korean Dual Citizen

RESEARCH & WORK EXPERIENCE

MIT Computer Science & Artificial Intelligence Laboratory

Massachusetts Institute of Technology

Software Developer

2021 to present

- *App Inventor*: An intuitive, visual programming environment that allows everyone – even children – to build fully functional apps for Android phones, iPhones, and Android/iOS tablets. The MIT App Inventor project seeks to democratize software development by empowering all people, especially young people, to move from technology consumption to technology creation.
- Related Article: [Q&A with David Kim, Software Developer with the MIT Computer Science and Artificial Intelligence Lab \(CSAIL\)](#)

Institute of Cognitive Science

University of Colorado Boulder

Research Assistance

2019 to 2021

- *Project Title*: Operationalizing Students' Textbooks Annotations to Improve Comprehension and Long-Term Retention

KATUSA

ROK-US Combined Forces Command

Military Service

2016 to 2018

- Served in the Military as KATUSA (Korean Augmented to the US Army)
- Worked in Intelligence Security and Operations staff

EDUCATION

MS, Computer Science, University of Colorado Boulder, 2021

4.0/4.0

- Advised by Michael C. Mozer
- Thesis: Modeling Student Comprehension Using Textbook Annotations: An Exploration of a Large Scale, Naturalistic Corpus

BS, Computer Science and Engineering, Sogang University, 2016

3.67/4.3

- Graduated with Magna Cum Laude
- Summer Session, University of California, Berkeley, 2014

PUBLICATIONS

- Pre-print
 - **David Y.J. Kim**, Prerna Ravi, Randi Williams, Daeun Yoo (2023), App Planner: Co-creating mobile applications with Generative AI, submitted to AAAI2024 Workshop on AI for Education - Bridging Innovation and Responsibility
 - **David Y.J. Kim** (2023), Redefining Computer Science Education: Code-Centric to Natural Language Programming with AI-Based No-Code Platforms., ArXiv
- Journal
 - Jasmine Shone, Robin Liu, Evan Patton, **David Y.J. Kim** (2023), "Exploring Prompt Engineering for Generative AI-Based App Generation". Acta Scientific Computer Sciences 5.5 (2023): 73-81.
- Conference Publication
 - Hanya Elhashemy, Robert Parks, **David Y.J. Kim**, Evan Patton and Harold Abelson (2023). Empowering Learners with a Low-Barrier Mobile Data Science Toolkit, FabLearn/Constructionism 2023
 - Daeun Yoo, **David Y.J. Kim**, Elisandra Lopes (2023). Digital Art Therapy with Gen AI: Mind Palette, In Proceedings of the 2023 11th International Conference on Affective Computing and Intelligent Interaction (ACII)
 - Daniel Kessler, **David Y.J. Kim**, Grace Ahn, Neska Elhaouij and Rosalind Picard (2023). Assessing Social Media Users' Affective Engagement with Digitally-Delivered Narratives of Invisible Disability, In Proceedings of the 2023 11th International Conference on Affective Computing and Intelligent Interaction (ACII)
 - Ashley M Granquist, **David Y.J. Kim**, and Evan W Patton. 2023. AI-Augmented Feature to Edit and Design Mobile Applications. In Proceedings of the 25th International Conference on Mobile Human-Computer Interaction (MobileHCI '23 Companion)
 - A. Zhou, **D. Kim**, H. Abelson (2023) Learn and using Image Classifiers by Creating Real Mobile Applications, INTED2023 Proceedings, pp. 3834-3841.
 - **D.Y.J. Kim**, A. Granquist, E. Patton, M. Friedman, H. Abelson (2022) Speak your mind: Introducing Aptly, the software platform that turns ideas into working apps, ICERI2022 Proceedings, pp. 1653-1660.
- Workshop Publication
 - **Kim, David Y.J.**, Scott, T. R., Mallick, D., & Mozer, M. C. (2021). Using semantics of textbook highlights to predict student comprehension and knowledge retention. In S. Sosnovsky, P. Brusilovsky, R. G. Baraniuk, & A. S. Lan (Eds.), Proceedings of the Third Workshop on Intelligent Textbooks (iTextbooks). Springer.

- **Kim, David Y.J.**, A. Winchell, A. Waters, Phillip J. Grimaldi, Richard Baraniuk and M. Mozer (2020). Inferring student comprehension from highlighting patterns in digital textbooks: An exploration in an authentic learning platform. In S. Sosnovsky, P. Brusilovsky, R. G. Baraniuk, & A. S. Lan (Eds.), Proceedings of the Second International Workshop on Intelligent Textbooks. Springer.
* Publication Recognition Award from CU Boulder Computer Science Department
- Reviewer
 - Reviewed 2 papers from the Technical Symposium on Computer Science Education (SIGCSE TS) 2023
 - Reviewed 2 papers from Affective Computing and Intelligent Interaction (ACII) 2023

TEACHING AND SUPERVISING EXPERIENCE

- [MIT Undergraduate Research Opportunities Program \(UROP\)](#) students
 - Robin Liu, 2022 ~ 2023
 - Ashley Granquist, 2022 ~ 2023
* Current MIT Master of Engineering (MEng) student
 - Evelyn Cai, 2022 ~ 2023
 - Maura Kelleher, 2023
 - Arianna Scott, 2023
 - Gisella Kakoti, 2023
 - Jennet Zamanova, 2023
 - Jacky Chen, 2023
 - Bela Sanchez Taipe, 2023
- Lecturer at Kanagawa Institute of Technology workshop, Japan
 - Lectured 23 in person, 60~100 remote undergraduate students with MIT App Inventor
 - Topic: Generative AI with App Inventor
 - [Blog post: App Inventor Training with MIT Software Engineer Instructor](#)
- [Research Science Institute \(RSI\)](#) Program students
 - Angel Nicole V. Iniego, 2023
* Leveraging Generative AI in College Application Essay Preparation
 - Jasmine Shone, 2022
* Yes, You Can Make an App Too: A Systematic Study of Prompt Engineering in the Automatic Generation of Mobile Applications from User Queries
* Regeneron Science Talent Search 2023, Top 300
* Current MIT undergraduate
- Graduate Student Assistant(Algorithm) - 2019
- Undergraduate Teaching Assistant(Data Structure) - 2014 ~ 2015
- Undergraduate Teaching Assistant(Introduction to Engineering Design) - 2014
- International Student Mentoring - 2014~2016

TALKS

- Demo, Flagship Symposium - MIT Generative AI: Shaping the Future, 2023
 - Generative AI + Education Symposium
 - [Title: The Power of GenAI In Your Hand: Creating gen AI mobile applications with MIT App Inventor](#)
- Presentation, MIT CSAIL 20/60 Anniversary Symposium, 2023
 - [Exploring The Potential Of Generative AI In K-12 Education](#)
 - Forbes Article: [Kids Can Use AI, Too - Look What They're Coming Up With...](#)
 - Related Article: [Education's New Era in AI: Cultivating Young Innovators ft. MIT App Inventor](#)
- Presentation in 2023 MIT CSAIL Alliances Annual Meeting Education, Research and Innovation, 2023
 - [Generative AI in K-12 Education with David Kim | CSAIL Alliances Annual Meeting 2023](#)
- Presentation, 15th annual International Conference of Education, Research and Innovation, 2022
 - Title: Speak your mind: Introducing Aptly, the software platform that turns ideas into working apps
- Presentation, Third Workshop on Intelligent Textbooks at The 22nd International Conference on Artificial Intelligence in Education (AIED 2021)
- Presentation, Second Workshop on Intelligent Textbooks at The 21st International Conference on Artificial Intelligence in Education (AIED 2020)
 - Theme: Smart Digital Textbooks To Enhance Learning
- Poster Session for The Canada-Korea Conference on Science and Technology(CKC 2019) - Prairies @ Banff, Alberta, Canada
 - Theme: Clean Technologies and Sustainable Future

AWARDS

- Academic Scholarships
 - Research Assistance-ship, 2020 ~ 2021
 - Grad School UF Scholarships, 2020

- Albatross Scholarship, 2018
- Academic Excellence Scholarship, 2014 ~ 2016
- Fellowships
 - Outstanding Student Fellowship by NAVER Cor. 2015
 - Summer Overseas Studying Fellowship by Binggrae Cor. 2014

PROJECT

- Aptly: the software platform that turns ideas into working apps
 - MIT Aptly is a new tool that can turn verbal descriptions into working apps. It was developed by the MIT App Inventor team, which is dedicated to making app development accessible to everyone. Aptly uses a large language model to understand the semantics of natural language and generate code in App Inventor Blocks. This allows anyone to create an app simply by telling Aptly what they want it to do.
- Operationalizing Students' Textbooks Annotations to Improve Comprehension and Long-Term Retention
 - Developed intelligent textbooks with the aid of OpenStax, a nonprofit organization that supports open-access college-level digital textbooks. Based on the annotations the students make obtained a window into the student's mental state during initial engagement with the material. Mostly focused on identifying the pattern of highlights an individual makes using machine learning and deep learning methodologies.
 - In collaboration with Dr. Michael Mozer, Adam Winchell, Tyler Scott, and Dr. Debshila Basu Mallick
- Analysis of Neural Hawkes Process in Event-Based Sequences - 2020
 - Project for CSCI 5922(Neural Networks and Deep Learning)
 - Compared Neural Hawkes Process with Hawkes process
 - Collaborated with Abhilash Jahagirdar, Karthik Siddaramanna, Madhusudhan Aithal
 - Utilized pytorch, theano
- Investigation in Data Imbalance - 2019
 - Project for CSCI 5622 (Machine Learning)
 - Investigated the suggestion that the PR curve is superior to the ROC curve in imbalance data settings
 - Collaborated with Seoung-Joon Kim, Hao Wu, Aman Satya
 - Utilized keras, tensorflow
- Face Tracking and Recognition at a Distance - 2015 ~ 2016
 - Undergraduate assistant in Computer Vision & Image Processing Laboratory(Sogang University)
 - Calibrate PTZ Camera using C++ programming
- NIPA Global ICT Capstone Project jointed with SUNY-Stony Brook - 2015
 - Nationwide project program from National IT Industry Promotion Agency(NIPA)
 - Experience hands-on optimizing/minimizing the design and construction of a self-navigating ground vehicle
 - Used Computer-aided design(CAD) for robot design
- Compare Performance of multi-thread and FPGA - 2015
 - Undergraduate project in Embedded Computing Laboratory(Sogang University)
 - Compared the performance of Frequent Item Set Algorithms using C++ Multi-thread using OpenMP and FPGA

SKILLS

Related Courses Neural Networks and Deep Learning, Machine Learning, Convex Optimization, Mathematical Statistics, Probabilistic Models of Human and Machine Learning

Programming Python, C, C++, Java, Matlab, HTML, CSS, PHP

Packages pystan, PyTorch, TensorFlow, matplotlib, sklearn

Languages English, Korean

EXTRA AFFILIATIONS

- Alpha Sigma Nu
 - Global honor program of Worldwide Christian University Society
- ACES
 - Violinist of the orchestra club at Sogang University