

INTERESTS

Data Mining, Item Response Theory, Knowledge Tracing, Intelligent Tutoring System, Educational Measurement, and Automatic Scoring.

EDUCATION

Seoul National University (SNU)

M.S. in Lifelong Education

Advisor: HunSeok, Oh

Seoul, Korea
Mar 2021 - Aug 2023

Seoul National University (SNU)

B.S. in Physics Education (GPA:3.49/4.3)

(Including 21 Months Mandatory Military Service)

Seoul, Korea
Mar 2015 - Feb 2021

WORK EXPERIENCE

MooWee Lab

Founder

AnYang, Korea
11/2025 - Current

- Founded an applied research lab focused on bridging learning science, measurement, and deployable educational systems
- Designed and implemented data-driven university counseling systems for high-school teachers, integrating national administrative data (NEIS)
- Conducted feasibility studies and prototyping for OCR-based document processing to support agency

Korea Institute for Curriculum and Evaluation

Research Assistant, Division of Educational Achievement Research

Jincheon, Korea
11/2023 - 10/2025

- KICE is one of the largest institutes in South Korea responsible for administering national-level examinations, including the SAT
- Evaluate human expert scoring of Constructed Response Item using Natural Language Processing algorithms like FastText
- Validate figures in electronic documents using object detection algorithms in OpenCV
- Develop Django-based system for enhancing work productivity

Futurenuri

Associate Developer, Department of Education Business, Dev.Team 7

Seoul, Korea
09/2023 - 10/2023

- Futurenuri is a solution development company with over 15 years of experience and more than 100 employees
- Test a system for scoring open-ended responses from test-takers

RESEARCH PROJECTS

College & Career Experience Center, SNURO

Researcher, SNU-Siheung Educational Cooperation Project

Siheung, Korea
03/2021 - 08/2023

- Designed an online mentoring system; developed MyPage and information pages using React
- Designed a logging system to collect mentoring process data; analyzed log and survey data
- Create Learning Analytics report for mentors using Python [link to example]

2022 AI-Integrated Education Long-Term Project

Principal Investigator, Department of AI-Integrated Education in Seoul National University

Seoul, Korea
08/2022 - 01/2023

- Managed an entire project for 5 months
- Developed a recommendation algorithm leveraging embedding representations of Collaborative Denoising Auto-Encoders
- Deployed a web application using AWS EC2, Firebase and Github Action

Research on SNU-Liberal Education Development

Researcher, Faculty of Liberal Education in SNU

Seoul, Korea
10/2021 - 08/2022

- Analyzed educational needs survey data with *Important-Performance Analysis*, *Borich need assessment*, *The Locus for Focus model*
- Participated in qualitative interview of success graduates in public & private sector
- Contributed in competency modeling for undergraduate students

Competency Assessment of Principal in Elementary & Middle School

Researcher, Gyeongsangnamdo Office of Education

Changwon, Korea
04/2022 - 07/2022

- Conduct Analytic Hierarchy Process (AHP) analysis for 199 school principals
- Create *Competency Profiles* for each school principals using MS Excel and VBA
- Operate educational workshops for school principals

Research on Digital Competency Scale

Researcher, National Information Society Agency

Daegu, Korea
09/2021 - 12/2021

- Analyzed survey data from 4,000 sampled participants
- Consulted on User Interface based on user flowcharts
- Designed a digital competency profile using Figma
- Participated in test item validation using Item Response Theory (IRT)

Develop 4th Industrial Revolution Program, SNU-G

Researcher, SNU-Siheung Educational Cooperation Project

Siheung, Korea
09/2021 - 12/2021

- Designed education programs on the 4th Industrial Revolution for adolescents
- Developed introductory quizzes on Augmented Reality (AR)

Education System Consulting

Research Assistant, Samsung Engineering

Seoul, Korea
04/2021 - 07/2021

- Participated in qualitative interviews with top-tier engineers about the developmental experiences of their expertise
- Participated in operating workshop for designing education system

A Study on the Future-directed Convergence Education Course System Model

Undergraduate Intern, SNU Office of Research Affairs, R&DB Foundation

Seoul, Korea
08/2019 - 03/2021

- Analyzed survey data from 1,000 undergraduates and curriculum history data from 15,000 undergraduates
- Participated in qualitative interviews with top-performing undergraduates from each department

Research on Educational Accomplishment

Undergraduate Intern, SNU-Siheung Educational Cooperation Project

Siheung, Korea
09/2019 - 02/2021

- Analyzed educational outcome survey data
- Participated in developing Regional Education Competitive Index (RECI)

Development of Competency Assessment for Vice Principal

Undergraduate Intern, SNU-Siheung Educational Cooperation Project

Siheung, Korea
09/2019 - 02/2020

- Participated in qualitative interviews with school vice principals

PUBLICATIONS

- [1] Yun, M., **Sung, J.**, Kang, C., & Oh, H. (2024). Educational Needs Analysis of Undergraduate Education Based on Core Competencies: A Case Study of S University. *Asian Journal of Education*, **25**(3), 421-499.
- [2] Choi, Y., & **Sung, J.** (2024). Do Key Predictors of Academic Resilience Differ Across Cultures? Evidence From Korea and the US. *Youth & Society*, 56(7). 0044118X241227563
- [3] **Sung, J.** (2023). A Study on the Experience of Career Development in Academic Talented Student. Master's thesis, Seoul National University.
- [4] Oh, H., Yun, M., Kim, B., Kim, Y., Kim, Y., Kim, J., Seo, D., Seo, **Sung J.**, Sin, J., Lee, D., Lee, S., Lee, J., Lee, J., Lee, J., Jo, H., Huh, W., & Hwang, I. (2023). Convergent Talent and University Education. *SNUInsight*.
- [5] Yoon, Y., & **Sung, J.** (2021). Exploring the Predictors of Community Competency according to Gender of High School Students: using Random Forest Analysis. *Korean Journal of Youth Studies* 28(4), 383-410.
- [6] **Sung, J.**, Lee, J., Choi, K., Jang, D., Lee, S., Oh, J., & Jo., J. (2021) Development of an Automated YouTube Science Video Recommendation Algorithm for Teachers. Bachelor's thesis, Seoul National University. [link to poster]

CONFERENCE PRESENTATIONS

- [1] Oh, H., Jo, T., Lee, J., Seo, D., Jang, J., Kim, N., **Sung, J.**, Ryu, J., & Gang, W. (2021). How Do Top-Tier Experts Develop?: A case study of S Engineering Company. Korean Society for Learning and Performance. [link to poster]

GRANT & SCHOLARSHIP

Fellowship for Fundamental Academic Fields

03/2021 - 02/2023

- Awarded by **SNU** for 2 years, full tuition fee and additional living expenses
- This fellowship was awarded to support the provision of a stable research environment for outstanding future scholars who will lead research in fundamental academic fields

BK Junior Scholar Fellowship

02/2021

- Awarded by **Research Project Group of Innovation and Coexistence Education**

SNU Development Fund Scholarship

01/2020 & 02/2020

- Awarded by **SNU** for two times

Merit-based Scholarship

01/2020

- Awarded by **SNU**

TEACHING EXPERIENCE

Special Lecture on Enhancing Employability <i>Guest Lecturer</i> , Chung Buk National University Undergraduate course on basics of data processing with MS Excel	CheongJu, Korea 11/2024
Machine Learning Camp for Novice: NLP(word-embedding) <i>Guest Lecturer</i> , University of Seoul Undergraduate course on basics of natural language processing and word embedding	Seoul, Korea 04/2022
Introduction to Education <i>Teaching Assistant</i> , Seoul National University Undergraduate course on education	Seoul, Korea Spring 2022
Education and Entrepreneurship <i>Teaching Assistant</i> , Seoul National University Undergraduate course on entrepreneurship in fields of education	Seoul, Korea Fall 2021
Basics of Scikit-learn: Predicting Employee Turnover <i>Guest Lecturer</i> , CoLA & EDM Introductory course on machine learning using <i>scikit-learn</i> library in Python	Seoul, Korea 08/2021

ADDITIONAL INFORMATION

Development

• EqUMP , IRT Equating for Unidimensional Mixed Format Test with Python	06/2025 - Current
• Data-driven Education , LMS system for data-driven education	07/2025 - Current
• CBT Manager , emulate Computer-based Test system	08/2025
• KISTEP Document Similarity Calculator , calculate similarity and explore embedding space	11/2024 - 06/2025
• Word2vec based college-major aptitude test	08/2023 - 10/2023
• Collaborative Denoising Auto-Encoder based major recommendation web application	06/2022 - 01/2023
• K-Nearest neighbors based english book recommendation web application	09/2022 - 12/2022
• Huni-utils , pip-installable Python Utility Package	02/2024 - Current
• Fluenglish , personal english learning web application	07/2023 - Current
• Misc: website crawler, YouTube Downloader(1, 2), Telegram & Discord chatbot	

Non-credit Courses

• Completed Big Data Analysis Using Web Data (at KOSSDA)	08/2020
• Completed Social Bigdata Collection and Text Analysis (at KOSSDA)	07/2020
• Completed R-course(categorical dataanalysis, advanced regression analysis, Bayesian statistics and multilevel model, multivariate analysis, decision tree and ensemble) (at Statsri)	08/2020

Volunteer Activities

• Volunteering at an animal shelter (at Actress Lee Yong-nyeo's abandoned dog shelter)	12/2021
• After-school teacher for middle school students (at Euncheon Regional Education center)	06/2020 - 07/2020
• International Volunteer (at Habitat for Humanity)	01/2016 - 02/2016

On-Campus & Extra Curricular Activities

• College of Education Language Exchange Program for Foreign Exchange Students (LEP)	Fall 2019
• Science Teacher in STEM Summer Camp (at JH Science Academy)	07/2019
• Walk Across Korea, Total 300km (at Student's Union in Seoul National University)	07/2015 - 08/2015

Misc.

• Korean Army sergeant, honorable discharge – Served as a squad leader and duty officer – Received four company commander commendations	07/2016 - 04/2018
• Class Representative for first year students in physics education	03/2015 - 07/2015
• Programming : Python, R, React, Typescript, Html/Css/Javascript	
• Software : Git, Linux(Ubuntu), AWS/Firebase, Figma	
• License : The Secondary School Teacher (Grade 2)	