

Seoul National University(1, Gwanak-ro, Gwanak-gu, Seoul, South Korea)

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Goal

- Making a *better world* through **Data-Driven Approach**
- Becoming a person who *creatively* solves difficult problems through **Interdisciplinary Convergence**

Education

Seoul National University

Seoul, Korea

College of Liberal Studies, *Junior*(2024 -)

- double majoring in **Computer Science and Engineering & Statistics**

- minoring in **Mathematical Science**

- currently under Military Service(2026-2027)

Shinil high school

Seoul, Korea

Graduated second class honor(2021 - 2023)

2024.02.

Experience

Team QST

Undergraduate Research Assistant

2024.02. –

- won *2024 Quantum Hackathon Korea - Mentor Special Award* (2024.07.) Seoul, Korea
- *with the topic of Classical Shadows and QML*
- did a presentation at *The 3rd CQNC Summer (Internal) Workshop* (2024.07.) SNU, Seoul, Korea
- *A High School Student Who Cannot Do Math That Well, Joins Team QST!*
- attended *2024 Qsim Conference* (2024.08.) South Kingstown, RI
- published
 1. *<Introduction to Ordinary Least Squares>* (2025.01.)
 2. *<Understanding Quantum Fourier Transform & Quantum Phase Estimation>* (2025.03)
 3. *<Understanding Shor's Algorithm>* (2025.03)
 4. *<Understanding Deutsch-Jozsa & Grover's Algorithm>* (2025.04)
- as some introductory notes for team members Seoul, Korea
- won *2025 Quantum Hackathon Korea - Mentor Special Award* (2025.07.) Seoul, Korea
- *with the topic of Effective Dimension and QML*
- attended *2025 Beyond-iid Conference* (2025.07.) TMU, Munich
- attended & did a poster presentation at *2025 Qsim Conference* (2025.08.) IBM, New York City, NY
- did a presentation at *Si-QST club mentoring lecture* (2025.08.) Shinil High School, Seoul, Korea
- did a presentation at *Team QST Internal Summer Workshop* (2025.08.) Seoul, Korea
- did a *mentoring* presentation at *the quantum information studying club of Jeonbuk Science High School* (2025.10.)
- did a oral presentation (contributed talk) at *2026 Annual Meeting of the Quantum Information Society of Korea* (2026.02.) Seoul, Korea
- attended & did a poster presentation at *2026 Quantum Resource Conference* (2026.03.) Tokyo, Japan
- did a oral presentation at *2026 International Workshop on Quantum State Discrimination: Various Practical Applications* (2026.04.) Busan, Korea

Awards & Honors

- 2024 Quantum Hackathon Korea - Mentor Special Award (2024.07.)
- 2024 SNU Global Social Contribution Plus Competition - Excellence Award (2024.11.)
- 2025 Quantum Hackathon Korea - Mentor Special Award (2025.07.)

Publication

Team QST

- <A Mutual Information-based Metric for Temporal Expressivity and Trainability Estimation in Quantum Policy Gradient Pipelines> (2025)
- *arXiv preprint.*
- <Projected Dynamic Programming for Sequential Quantum State Discrimination> (2026)
- *arXiv preprint.*

Presentation

Poster

- **ICER 2025**(International Conference on Education Research)
- <Exploring Paraverbal and Nonverbal Indicators for Public Speaking Assessment>
(July 10-11, 2025, College of Education at SNU)
- **QSim 2025**(Quantum Simulation 2025)
- <Mutual Information-Based Expressivity Measure and Quantum Policy Gradient>
(Aug 4-8, 2025, IBM at NYC)
- **QIP 2026**(Quantum Information Processing conference 2026) - <A Mutual Information-based Metric for Temporal Expressivity and Trainability Estimation in Quantum Policy Gradient Pipelines>
(Jan 24-30, 2026, University of Latvia in Riga, Riga, Latvia - by the co-author)
- **Quantum Resource 2026**(Quantum Resource 2026) - *same as above.*
(Mar 16-20, 2026, Tokyo, Japan)

Talk

- **Si-QST club mentoring lecture**
- *About the expressivity and trainability problems in the quantum policy gradient pipelines*
(Aug 27, 2025, Shinil High School, Seoul)
- **Team QST Internal Summer Workshop**
- *MI-ET, a Mutual Information-Expressivity and Trainability Measure tailored for Quantum RL (Quantum Policy Gradient) Part I*
(Aug 31, 2025, Seoul)
- **Mentoring Lecture for the quantum information studying club at Jeonbuk Science High School**
- *About the expressivity and trainability problems in the quantum policy gradient pipelines (more advanced version)*
(Sep 16, 2025, through online meeting)
- **Contributed Talk for 2026 Annual Meeting of the Quantum Information Society of Korea**
- *A Mutual Information-based Metric for Temporal Expressivity and Trainability Estimation in Quantum Policy Gradient Pipelines*
(Feb 27, 2026, Seoul)
- **Interntional Workshop on Quantum State Discrimination: Various Practical Applications**
- *Projected DP for sequential QSD in POMDPs: Error bounds and complexity*
(Apr 11, 2026, Busan, Korea)

Leadership & Activities

VESS, a school club for appropriate technologies

SNU, Seoul, Korea

Club Member

2024.03. - 2025.02.

- did a project about **Developing an App for Reading Assistance Designed for Dyslexic Patients**

- won *2024 SNU Global Social Contribution Plus Competition - Excellence Award* (2024.11.)
by a project about **Designing Cleaning Appliances to Help Clean Plastic Delivery Containers and Reusable Containers - to Increase Plastic Recycling Rates**
- did a project about **Making a Digital Archive of the Elderly's Life Interview Records (Interview Videos & Articles)**
- participated in **Science&Technology Experience Program for Blind Children** during 2024 winter vacation

Vice President of the Club

2025. 03. - 2026. 02.

- planned and delivered a **newcomer training program** guiding new club members how to identify problems, define them clearly, and develop creative solutions.
- planned and managed a **homecoming event** connecting current members with alumni (OB) and organized **hackathons** where participants identified some crucial social problems and proposed engineering/non-engineering solutions on designated themes.
- **mentored and supported** several club teams participated in the *2025 SNU Global Social Contribution Plus Competition*, offering insights on project orientation and practical advice from an experienced perspective.

SNU Learning Science Research Institute

SNU, Seoul, Korea

Winter internship program

2025.01. - 2025.02.

- did a pilot-research about **Statistical analysis of the effect of nonverbal and paralinguistic factors on the listener's subjective evaluation of speaking ability in public speaking situations**
 - mainly did a *Statistical Modeling & Analysis* using Python.
 - extended the research and delivered a poster presentation at the conference **ICER 2025**.

Skills & Interests

Technical: Python, C, R

Language: English-Intermediate Level, German-Basic Level, Korean-Native

Interests:

For **Computer Science and Engineering & Statistics**

- Statistical Learning Theory concerning conventional Machine Learning and Deep Learning
- Both Classical and Quantum Information Theory

Diverse Fields of **Quantum Machine Learning & Quantum Computation Theory**

- Quantum Reinforcement Learning
- Expressivity and Trainability problems of Parameterized Quantum Circuits (PQCs)
- Quantum Topological Data Analysis
- Theoretical Background between Quantum Advantage and Classical Simulability

Social Contribution Through Engineering

- *especially through Computer Engineering*

Project Managing

- aims to think always '*creatively*'