

JAEHUN JEONG

Computer Science · Statistics · Mathematics

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RESEARCH INTERESTS

Quantum information theory and theoretical quantum computing, particularly the learning, inference, and certification of quantum states and dynamics. High-dimensional statistics and other fields of theoretical computer science.

EDUCATION

Seoul National University

Expected 2031

B.S. in Computer Science and Statistics; Minor in Mathematical Sciences

Seoul, Republic of Korea

- GPA: 4.0 / 4.30
- **Selected coursework:** Linear Algebra, Introduction to Mathematical Analysis with Practice 1, Introduction to Mathematical Analysis with Practice 2, Bayesian Statistics and Lab., Deep Learning: Statistical Perspective (grad.), Introduction to Machine Learning, Introduction to Quantum Information and Quantum Computing.

PUBLICATIONS

- [1] **Jaehun Jeong**, Donghwa Ji, and Kabgyun Jeong. “A Mutual Information-based Metric for Temporal Expressivity and Trainability Estimation in Quantum Policy Gradient Pipelines.” *Machine Learning Science and Technology*. [MLST]
- [2] **Jaehun Jeong**, Donghwa Ji, Hyunjun Jang, and Kabgyun Jeong. “Projected Dynamic Programming for Sequential Quantum State Discrimination.” *arXiv preprint*. [arXiv]

RESEARCH EXPERIENCE

Team QST

2024-Present

Undergraduate Quantum Information Science Research Team lead by Dr. Kabgyun Jeong

SNU Institute of Computer Technology, Seoul, Korea

Statistical Modeling of Public-Speaking Assessment

Jan.–Feb. 2025

SNU Learning Science Research Institute, Winter Research Internship

Seoul, Korea

- Conducted a pilot study on the relationship between paraverbal and nonverbal behavioral features and subjective evaluations of public-speaking performance.
- Performed statistical modeling and data analysis in Python to examine associations between behavioral indicators and listener assessments.
- Extended the project into a poster presented at the 2025 International Conference on Education Research (ICER).

PRESENTATIONS

Oral Presentations

A Mutual Information-based Metric for Temporal Expressivity and Trainability Estimation in Quantum Policy Gradient Pipelines

Feb, 2026, Seoul

2026 Annual Meeting of the Quantum Information Society of Korea, *Contributed Talk*

Projected DP for sequential QSD in POMDPs: Error bounds and complexity

Apr, 2026, Busan

International Workshop on Quantum State Discrimination: Various Practical Applications, *Oral Presentation*

Poster Presentations

Exploring Paraverbal and Nonverbal Indicators for Public Speaking Assessment

Aug, 2025, Seoul

International Conference on Education Research (ICER), *Poster Presentation*

Mutual Information-Based Expressivity Measure and Quantum Policy Gradient

Aug, 2025, NYC

Quantum Simulation 2025, *Poster Presentation*

A Mutual Information-based Metric for Temporal Expressivity and Trainability Estimation in Quantum Policy Gradient Pipelines

Mar, 2026, Tokyo

Quantum Resource 2026, *Poster Presentation*

HONORS & AWARDS

Mentor Special Award, 2024 Quantum Information Competition

2024

Ministry of Science and ICT; one of two recipient teams among 20 finalists. Project on classical shadows and quantum machine learning

Mentor Special Award, 2025 Quantum Information Competition

2025

Ministry of Science and ICT; one of two recipient teams among 20 finalists. Project on effective dimension and quantum machine learning

Excellence Award, 2024 Global Social Contribution PLUS+ Competition

2024

Seoul National University; one of two Excellence Award recipients among 21 teams. Developed a 3D-printed automated cleaning device for plastic food-delivery containers

Cho Hyun-jung Foundation Scholar

2022–2025

Four-year scholarship; selected as one of 12 scholars nationwide

TEACHING & MENTORING

Quantum Information Mentor / Guest Lecturer

2025

Shinil High School & Jeonbuk Science High School

Seoul / Online, Korea

- Delivered introductory and advanced lectures on expressivity and trainability in quantum policy gradient methods to student quantum information groups.

Peer Instructor

2025

Team QST

Seoul, Korea

- Authored introductory technical notes on ordinary least squares, quantum Fourier transform and phase estimation, Shor's algorithm, and Deutsch–Jozsa and Grover algorithms for junior team members.

LEADERSHIP & SERVICE

Vice President, VESS

2025–2026

Appropriate Technology Development Club, Seoul National University

Seoul, Korea

- Designed and led an onboarding program for new members, focusing on problem identification, problem formulation, and creative solution development.
- Organized internal hackathons and alumni engagement events, facilitating project development around engineering and social challenges.
- Mentored student teams participating in the 2025 SNU Global Social Contribution PLUS+ Competition, advising on project direction and problem formulation.

Program Lead, Science & Technology Outreach Program for Visually Impaired Students

2024

VESS, Seoul National University

Seoul, Korea

- Designed and delivered an accessible hands-on science and technology outreach program featuring generative AI and 3D-printing pens for visually impaired students, in collaboration with Korea Welfare Foundation for the Visually Handicapped.
- Developed the program into a reusable outreach framework, enabling subsequent VESS members to continue the program annually during the summer breaks of 2025 and 2026.

TECHNICAL SKILLS

Programming	Python, C, R
Scientific Computing	Qiskit, PennyLane, PyTorch, NumPy, SciPy, Mathematica
Research Tools	$\LaTeX$, Git, Linux
Languages	Korean (native), English (<i>almost</i> professional working proficiency), German (basic)

ADDITIONAL EXPERIENCE

Republic of Korea Army

2025–2027

Mandatory Military Service

Republic of Korea