

JUNWOO JUNG

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RESEARCH INTERESTS

Neutral Atom Quantum Computing, Resource Theory of Quantum Computing, Quantum Simulation

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) <i>Bachelor of Science in Physics</i>	Mar 2023 – Present <i>Daejeon, Korea</i>
• GPA: 3.78 / 4.30	
• Relevant Coursework: Quantum Information I/II, Quantum Mechanics I/II, Scientific Computing for Quantum Information Science, Statistical Mechanics	
Korea Science Academy of KAIST (KSA) <i>High School Diploma</i>	Feb 2020 – Feb 2023 <i>Busan, Korea</i>

HONORS & AWARDS

Second Place Presentation Award <i>2025 CAMPUS Asia Joint Research Presentation</i>	Aug 2025 <i>KAIST, Korea</i>
• Awarded the Second Place Prize for the oral presentation entitled " <i>Exploring the Gap between Thermal Operation and Gibbs-Preserving Covariant Channel</i> ".	
• Recognized for excellence in research clarity and technical depth among representatives from KAIST, NTU (Singapore), and Science Tokyo (Japan) .	

PUBLICATIONS & PREPRINTS

- J. Park, **J. Jung**, J. Ahn. *Determined error-mitigated performance in Rydberg quantum computing for the maximum independent set problem.* **In Preparation.** 2026
- **J. Jung**, J. Son, R. Ganardi, N. Ng. *Bridging the gap between GPC and TO using robust catalysis.* **Unpublished Manuscript** (Draft available upon request). 2025
- A. Byun, **J. Jung**, K. Kim, M. Kim, S. Jeong, H. Jeong, J. Ahn. *Rydberg-atom graphs for quadratic unconstrained binary optimization problems.* **Advanced Quantum Technologies**, 2300398. [\[DOI\]](#) 2024

SELECTED PRESENTATIONS

Invited Oral Presentation (Upcoming) <i>Institute of Science Tokyo (Science Tokyo)</i>	Scheduled for Jan 2026 <i>Tokyo, Japan</i>
• Invited to present on " <i>Resource Theory of Quantum Computing</i> " to the host research group.	
• Demonstrates sustained international research collaboration following the Campus Asia program.	

RESEARCH EXPERIENCE

Research Intern <i>Quantum Computing Lab (Prof. Jaewook Ahn)</i>	Sep 2025 – Present <i>KAIST</i>
• Suggested a brute-force error mitigation method applied to defective MIS data.	

- **Output:** Publication in preparation.

Research Intern	Jan 2025 – Aug 2025
<i>Condensed Matter Theory Group (Prof. Gil Young Cho)</i>	<i>KAIST</i>
• Investigated the behavior of Chiral Central Charge when the strict entanglement law contains an error term.	
Visiting Research Intern	Aug 2024 – Jan 2025
<i>The inQLings (Prof. Nelly Ng)</i>	<i>NTU, Singapore</i>
• Investigated the gap between Thermal Operations and Gibbs-Preserving Covariant Channels.	
• Output: Unpublished Manuscript (Draft available).	
Research Intern	Apr 2024 – Jul 2024
<i>Complex Systems and Statistical Physics Lab (Prof. Hawoong Jeong)</i>	<i>KAIST</i>
• Investigated the limits of LOCC via Quantum Catalysis.	
Research Intern	Sep 2023 – Feb 2024
<i>Quantum Matter Lab (Prof. Jae-yoon Choi)</i>	<i>KAIST</i>
• Implemented a GUI for laboratory equipment monitoring and Python simulations for laser cooling.	
Research Intern	Jun 2023 – Sep 2023
<i>Quantum Computing Lab (Prof. Jaewook Ahn)</i>	<i>KAIST</i>
• Developed a method to construct Rydberg atom graphs solving integer QUBO problems.	
• Output: Published in <i>Advanced Quantum Technologies</i> .	

SELECTED TRAINING & WORKSHOPS

Selected Participant	Dec 2025
<i>KIAS-SNU Physics Winter Camp 2025</i>	<i>Seoul, Korea</i>
• Intensive program on <i>New States of Quantum Matter</i> and AI-driven Physics.	
Summer Student	Summer 2025
<i>Technical University of Denmark (DTU)</i>	<i>Lyngby, Denmark</i>
• Completed coursework on <i>Scientific Methods for Quantum Information Science</i> (5 ECTS).	
Participant	Jan 2024
<i>KAIST-MIT Quantum Winter School</i>	<i>Daejeon, Korea</i>
• Joint intensive program on quantum information science.	

TECHNICAL SKILLS

- **Programming:** Python (NumPy, SciPy, QuTiP, NetworkX), Mathematica, C++, MATLAB.
- **Languages:** Korean (Native), English (Fluent), Spanish/Chinese (Elementary).