

Dahyun Joo

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Republic of Korea | DOB: Aug 28, 2000 | Marital Status: Single

EDUCATION

Seoul National University	2025 – Present
<i>M.S. Course, Mechanical Engineering</i>	
• AI-driven Simulation and Design Lab (Principal Investigator: Prof. Do-Nyun Kim)	
Seoul National University	2019 – 2025
<i>B.S. Physics (Minor: Mechanical Engineering)</i>	
• Thesis: <i>wPINNs: Enhancing Physics-Informed Neural Networks with Wavelet Activation Functions</i>	
Chungnam Science High School	2016 – 2019
<i>R&E at Physics Student Group</i>	
Saerom Middle School	2015 – 2016
American School of Yaounde	– 2015

RESEARCH EXPERIENCE

M.S. Researcher	Mar 2025 – Present
<i>SNU AI-driven Simulation and Design Lab (Prof. Do-Nyun Kim)</i>	
• Develop reusable kirigami-based impact absorbers by engineering bistability / snap-through and geometry-driven energy absorption for repeatable deformation without material damage.	
• Build simulation-to-design pipelines (e.g., FEA , parametric modeling, optimization loops) to map pattern parameters to force-displacement response and impact performance.	
• Investigate quantum-enhanced topology optimization by integrating variational quantum circuits with classical solvers to accelerate design-space exploration under mechanical constraints.	
Undergraduate Research Intern	Sep 2024 – Jan 2025
<i>SNU MetaStructure Lab (Prof. J. H. Oh)</i>	
• Studied waves and metamaterials via acoustic finite element methods and numerical analysis.	
• Supported AI-driven topology optimization by preparing simulation cases, organizing results, and iterating candidate designs.	
Undergraduate Research Intern	Oct 2023 – Jan 2024
<i>SNU Transformative Architecture Laboratory (Prof. J. K. Yang)</i>	
• Simulated deployable bistable dodecahedral origami to support fabrication feasibility; performed FEA in Abaqus .	
• Summarized assumptions and key outcomes to guide design iteration and production planning.	

PROJECTS

Samsung Display	2025.03 – 2026.02
<i>Bistable Kirigami Integration for Curved Display Corner</i>	
• Integrated a bistable kirigami pattern into curved-display corner regions to enable controlled shape transition and robustness under constrained geometry.	
• Iterated pattern parameterization and stability-focused analysis to satisfy corner curvature and boundary constraints; prioritized manufacturability and repeatable behavior.	
LG Electronics	2025.06 – 2025.09
<i>Kirigami-Enhanced Pulp-Mold Packaging for Impact Absorption</i>	
• Applied kirigami patterns to pulp-mold packaging to increase deformation stroke and improve energy absorption without adding bulk material.	
• Developed practical pattern guidelines considering pulp-mold forming constraints; summarized expected mechanical behavior and prototyping directions.	

AWARDS

Semiconductor Solverton Competition Top Prize	2024
• Deputy Prime Minister and Education Minister Prize.	
• Optimized AC performance of GAA NS FET via structural modeling and process-driven device design; analyzed resistance, capacitance, and frequency gain vs. FinFET; proposed enhanced design via TCAD.	
Seoul National University Semiconductor Specialized College Scholarship	2024
Korean History Proficiency Test (Level 1, 100/100)	2022
ROKAF Entrepreneurship Contest: Advanced to MND Finals	2022
Excellent Private Award	2021
• Granted by ROK Air Force Information Communication School Principal (Col.).	
Certificate of Completion: Startup Investment Education	2020
• Issued by SNU Entrepreneurship Center.	
Excellent Student Award	2019
• Granted by Chungcheongnam-do Federation of Teachers' Association.	

WORK EXPERIENCE

Intern — STATION F	2025.02
Intern — Thales Korea	2024.03 – 2024.07
Working Scholar — SNU Gwanak Residence Halls Administrative Office	2024.01 – 2024.02
Content Creator (YouTube) — Independent	2022.10 – Present
Sergeant (Completed Service) — Republic of Korea Air Force (15th Weather Squadron)	2021.07 – 2023.04
President of Student Council — SNU Department of Physics and Astronomy	2020.11 – 2021.07
Working Scholar — Center for Theoretical Physics, SNU Department of Physics and Astronomy	2020.03 – 2021.06
Brand Owner / Online Retail Sales — jjooda & DogodoNongwon	2020.04 – 2023.05
CFD Engineer — Rocket pre-startup Kspace (Injector Design)	2019.12 – 2020.02

SKILLS

Languages: Korean (Mother tongue), English (Fluent: TOEFL 104), French (Good: DELF A2)

Programming: C, Python, MATLAB, R

Engineering Software: ANSYS, NX, STAR-CCM+, Abaqus, SolidWorks, COMSOL Multiphysics