Ikhan Choi

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PROJECTS

GAME ENGINE
RENDERING
PHYSICS SIMULATIONS
ARTIFICIAL INTELLIGENCE

SKILLS AND QUALIFICATIONS

Natural Language: Korean (native), Japanese (fluent), English (proficient)

Programming Language: C++, Python, LaTeX

EDUCATION

University of Tokyo	Apr 2025 – Now
Ph.D. program in Mathematical Science	
University of Tokyo	Apr 2023 – Mar 2025
M.S. in Mathematical Science	
Pohang University of Science and Technology	Mar 2016 – Aug 2022
B.S. in Mathematics	
(Early graduation: leave of absence for three years including military service)	
Seoul Science High School	Mar 2013 – Feb 2016
(Specialized high school for gifted students)	

WORKING EXPERIENCES

R&D on Natural Language Processing for Chatbot development	Jun 2019 – Aug 2019
Internship Program, Persona AI Co., Ltd.	
Implemented variable length HMM, Bahdanau attention model, and sentiment analyzer with seq2seq.	

ACADEMIC EXPERIENCES

INTERESTS

Functional Analysis and Homotopy Theory

PUBLICATIONS

I. Choi, *A solution to Haagerup's problem and positionve Hahn-Banach separation theorems in operator algebras*,
preprint, arXiv: 2501.16832. (Master's thesis)
Solved a 50 years old open problem posed by U. Haagerup.

I. Choi, *Curved folding and planar cutting of simple closed curve on a conical origami*,
Kodai Math. J., 39-3 (2016) 579-595. (High school thesis)
Suggested a problem in terms of classical differential geometry of determining whether a closed curve on a plane can be realized as the intersection of a piecewise smooth isometric immersion of the plane and another plane embedded in the three-dimensional Euclidean space.

AWARDS AND HONORS

Research Fellowship for Young Scientists (Doctoral Course)   Apr 2026 – Mar 2028
Japan Society for the Promotion of Science (JSPS)

Dean's Award   Mar 2025
M.S. in Graduate School of Mathematical Science at the University of Tokyo

Japanese Government (MEXT) Scholarship   Apr 2023 – Mar 2026
Embassy recommendation, Research student

Gold Prize in 38th Mathematics Competition for University Students in Korea   Nov 2019
1st group for math majors
Sponsored by Korean Mathematics Society

TEACHING

Teaching Assistant: Geometry II   Fall 2024

Teaching Assistant: Complex Analysis I   Fall 2023

Student Mentoring: MATH 423 Introduction to Differential Geometry   Fall 2019

OTHER EXPERIENCES

Military Service   Jan 2020 – Jul 2021
1st Marine Division Band, Republic of Korea Marine Corps
Military Musician (Saxophone)