

SeungJu Lee

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EDUCATION

Northwestern University

Double Major in Mathematics and Computer Science, Minor in Data Science

Evanston, IL

Sept. 2021 - June 2025

Marianas High School

Salutatorian

Saipan, MP

August 2017 - May 2021

EXPERIENCE

Direct Reading Program

December 2022 – June 2025

Mentored by Adam Holeman

Northwestern University, Evanston, IL

- Gained a comprehensive understanding of manifolds and studied Hamiltonian flow within geodesics on a manifold
- Wrote a senior thesis on Curve Shortening Flow and Mean Curvature Flow
- Textbooks: Introduction to Manifolds by Loring Tu, Lecture Notes from Grad Students

Undergraduate Research

December 2022 – June 2025

Mentored by Professor Gábor Székelyhidi

Northwestern University, Evanston, IL

- Studying various curvature flows, including mean curvature flow and curve shortening flow, and their applications in geometric analysis.
- Textbooks: Extrinsic Geometric Flows by Ben Andrews, several other papers written by Gage and Hamilton

Preliminary Arizona Winter School

Sep 2024 – Nov 2024

PAWS (NSF-funded virtual program)

Virtual

- Learned Symmetries of Root Systems, exploring the classification of root systems, Dynkin diagrams, Weyl groups, and their applications to Lie theory and the Langlands program
- Participated in weekly problem-solving sessions and discussions led by graduate mentors, engaged with advanced topics at the intersection of representation theory, algebra, and number theory

Summer Independent Study

May 2023 – Sep 2023

Directed by Professor Jared Wunsch

Virtual

- Studied spectral and scattering theory on quantum graphs, focusing on the behavior of quantum particles on networks of edges and vertices
- Textbooks: Introduction to Quantum Graphs by Berkolaiko

Lean Theorem Proving Project

November 2021 – April 2022

Directed by Professor Apurva Nakade

Northwestern University, Evanston, IL

- Utilized Lean to prove theorems in graph theory, studied the formalization of mathematical concepts.
- Introduction to Graph Theory by Wilson

Stanford Pre-Collegiate University

June 2020 – Sep 2020

Directed by Professor Margarita Kanarsky

Virtual

- Completed Stanford University's Pre-Collegiate Program in Number Theory

Pioneer Academics

June 2020 – Sep 2020

Mentored by Professor Gregory Dresden

Virtual

- Conducted original research through the Pioneer Academics Program on continued fractions whose entries are drawn from the Pascal, Fibonacci, and Lucas sequences
- Made contributions to Online Encyclopedia of Integer Sequences(OEIS) entries A337521 and A135829.

Hampshire College Summer Studies in Mathematics

July 2020 – Aug 2020

Held online due to pandemic

Virtual

- Selected to attend the Hampshire College Summer Studies in Mathematics (HCSSiM), a rigorous 6-week proof-based program focused on advanced mathematical thinking, problem-solving, and collaboration
- Participated in intensive daily sessions, interactive problem sets, and mathematical exploration guided by faculty and peers