SeungJu Lee

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EDUCATION

Northwestern University   Evanston, IL
Double Major in Mathematics and Computer Science, Minor in Data Science   *Sept. 2021 - June 2025*

Marianas High School   Saipan, MP
Salutatorian   *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
- You can find my senior thesis here

Northwestern University Undergraduate Math Society (NUMS)   September 2022 – June 2025
Student Run Organization   **Northwestern University**, Evanston, IL
- Attended weekly meetings featuring guest lectures from faculty members at Northwestern and visiting professors from other institutions, covering topics related to their current mathematical research.

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