

# Elliott Yoon

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## Education

### Northwestern University

Evanston, IL (2021-2025)

B.A. Mathematics (3.81 GPA)

- **Relevant coursework:**\* Compilers, Database Systems, Data Structures & Algorithms, Functional Programming, Operating Systems, Programming Languages, Systems Programming, Web Development
- **...and just for fun:** Abstract Algebra<sup>†</sup>, Differential Topology, Graph Theory, Intensive Linear Algebra & Multivariable Calculus<sup>†</sup>, Number Theory, Probability & Stochastic Processes, Real Analysis<sup>†</sup>, Smooth Manifolds

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## Employment

### Software Engineer Intern — *Java*

Washington, DC (June 2024 - August 2024)

Palantir Technologies

- Designed and implemented a low-latency algorithm to persist state updates in real-time distributed data systems, increasing the frequency of lossless data synchronizations in graphs of peered networks by 7200%.
- Built a parser to generate React component dependency graphs from Typescript monolith repositories; used to visualize and analyze graph properties of repository file structures for ease of navigation and refactoring.

### Teaching Assistant — *Rust*

Evanston, IL (September 2022 - )

Northwestern University

- CS 339: Database Systems (Fall 2024): Built a relational database management system:
  - Created internal SQL engine, planner, and optimizer for query execution with transactional concurrency control; built heap file storage engine to cache data persisted on disk to memory with a buffer pool manager.
  - Stubbed out API implementations in select internal modules for students to complete as assignments.
- Other: CS 339: Database Systems (Sp24), CS 396: Artificial Life (Wi23), Math 220: Calculus (Fa22, Wi23, Fa23)

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## Projects

### Compiler — *C++*

(January 2023 - March 2023)

- Generates x86 Intel Assembly from a C-based language. Used tiling methods for efficient instruction selection. Implemented liveness testing, graph coloring, and spilling algorithms for register allocation.

### 2048 Racer — *Go, React, Docker, Websockets*

(June 2022 - August 2022)

- Enables real-time instances of the game 2048 in which players can race one another. Developed minimax backtracking algorithm with alpha-beta pruning against which users can compete. (It's successfully beat the game!)

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## Miscellaneous

### Languages

C/C++, Java Python, Rust, SQL, Typescript

### Accolades

2024 ICPC Mid-Central Regional (3rd place), Qualified for 2024 ICPC NAC

Award for Excellence in Mathematics by a First Year Student, National Merit Finalist

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\*4.00 GPA

<sup>†</sup>MENU: <https://www.math.northwestern.edu/undergraduate/menu/>