

# Henry Jochaniewicz

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## EDUCATION

**University of Notre Dame** | Notre Dame, IN | *GPA: 4.0, Dean's List* May 2027  
*Bachelor of Science* | Major: Computer Science | Minor: Theology  
**Saint Viator High School** | Arlington Heights, IL | *Valedictorian* May 2023

## WORK EXPERIENCE & LEADERSHIP

**University of Notre Dame** | Notre Dame, IN August 2024 – Present  
*Teaching Assistant: Discrete Mathematics, Undergraduate*

- Hold office hours, grade 50 students, and coordinate with 4 other TAs and instructor

**University of Notre Dame** | Notre Dame, IN August 2024 – Present  
*Mentor: Conversations of Purpose for Foundations of Theology*

- Foster conversations with 6 freshmen and a co-leader about theology, faith, and the way they relate to personal life

**Domer Rover Engineering Design Club** | University of Notre Dame September 2023 – Present  
*Team Lead: Radio and Communications* | May 2024 – Present

- Collaborate with 9 other leads to build a functional rover to compete in the University Rover Challenge
- Develop network programs with ZeroMQ to transmit video feed and controller input across 2.4 GHz and 900 MHz transceivers
- Earned a Technician Amateur Radio License (callsign KE9AZR) through the FCC for the club
- Researched antennas, transceivers, and protocols to establish wireless connection between rover and base station at 1 km distance

*Team Member: Radio and Communications* | September 2023 – May 2024

- Coded a client-server connection to expand and apply to a Raspberry Pi and computer over a 2-month period

**Kilwins** | Arlington Heights, IL July 2022 – Present  
*Floater / Senior Staff*

- Provided friendly service with customer lines 100+ for ice cream, worked 25 hrs/week consistently, and trained new hires

## TECHNICAL PROJECTS

**Fragment Shaders in OpenGL** July 2024 – August 2024

- Developed 10+ fragment shaders in GLSL of Voronoi diagrams, the Mandelbrot set, and shape transformations by implementing techniques, e.g. shaping functions, deterministic randomness, cellular noise, and fractal Brownian motion

**Tetris Recreation** | University of Notre Dame January 2024 – May 2024

- Recreated Tetris in C using X11 graphics with a simple graphics library that has line clearing animations, piece storage, scoring, and levels that increase speed of falling pieces in an about 600-line codebase

**Crossword Puzzle Generator** | University of Notre Dame January 2024 – May 2024

- Programmed an algorithm in C that produces a crossword puzzle based on a maximum of 20 inputted words

**Conway's Game of Life Simulator** | University of Notre Dame January 2024 – May 2024

- Coded simulator in C that allows user input to create and iterate cells on a 40 by 40 board, or to enter a file at the command line to automatically initialize an event

**Innovate-O-Thon** | University of Notre Dame September 2023, March 2024

- Competed in an overnight competition with 3 peers to design a solution to a mystery engineering problem and present to Marmon Holding Officials
- Presented a solution to optimize the testing process of fiber optic cables that parallelizes testing with a cage and ball valve system
- Designed a tool to join CPVC pipes with heat melding that combines bar clamps, oil filter wrenches, and a helical coil

**Cylinder Valve** | University of Notre Dame August 2023 – December 2023

- Iterated 2 times on a 3D-printed and SolidWorks-modeled 3-component cylinder valve by collaborating with 3 group members, calculating flow rates for the valve with Excel

**Water Bottle Holder** | University of Notre Dame August 2023 – December 2023

- Designed and printed a SolidWorks-modeled bike water bottle holder by writing a memo and measuring dimensions

## RELATED COURSEWORK

Fundamentals of Computing, Systems Programming, Discrete Mathematics, Engineering Design, Logic Design and Sequential Circuits, Data Structures, Calculus III, Intro to Linear Algebra and Differential Equations, Algebra

## CERTIFICATIONS & AWARDS

Technician Amateur Radio License (KE9AZR), Christopher Erdmann Cup Award, AP Scholar with Distinction, National Honor Society, Italian Honor Society, Math Honor Society (Mu Alpha Theta), Computer Science Honor Society, STEM Designation, First Place Individual Precalculus ICTM Regional Math Contest 2023

## TECHNICAL SKILLS & HOBBIES

**Technical:** Java, C, Python, GLSL, Git/GitHub, Processing, Godot, Vim, VSCode, SolidWorks, Excel

**Hobbies:** Origami, golf, piano (self-taught), cult-classic movies (e.g. Hitchcock, Studio Ghibli), video games, game development, running