Roshan Hegde

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Education

University of Illinois at Urbana-Champaign May 2026
B.S. in Computer Science, Grainger College of Engineering *GPA: 4.0/4.0*
Highland Park High School May 2023
GPA: 4.69/4.0

Relevant Coursework

Courses: Algorithms and Models of Computation, Cryptography, Computer Architecture, Numerical Methods, Data Structures (Honors), Probability and Statistics for Computer Science, Linear Algebra with Computational Applications, Fundamental Mathematics, Discrete Structures
Northwestern University Courses: Java, C++, Machine Learning

Skills

Languages: C, C++, Java, Kotlin, Python, Lua, Rust, Javascript, Typescript, HTML, CSS
Tools: Git, GitHub, Docker, Linux, Nix, Vim

Frameworks: Svelte, React, Tailwindcss, Vite
Libraries: numpy, pytorch, pandas, matplotlib

Projects

nix-tinker | *Rust, Cargo, Nix, Nix Flakes* May 2024 – Present
- Open source developer tool that allows for rapid prototyping of configuration files
- Designed simple CLI interface to allow users to temporarily unlink files for the nix store
- Utilized Nix Flakes to ensure reproducibility and consistency across machines

RecursiveTicTacToeML | *Rust, Cargo, Nix, Git* June 2022 – Present
- Implemented a recursive variation of tic-tac-toe descending to the nth dimension
- Trained self playing network with gradient descent and backpropagation derived from scratch
- Built a websocket-based multiplayer mode with game state validation

hello_lang | *Rust, Cargo, Git | 1st place, HackIllinois '24* February 2024
- Built a developer tool used to universally initialize a basic development environment for over 30 languages
- Designed modular software architecture allowing for suckless configuration and rapid language implementation
- Implemented auto-writing documentation and option usage without the use of 3rd party CLI libraries

cookies | *Java, Git | 1st place, MechMania 29* September 2023
- Developed an AI model that competed with other participants' models in a simulated turn-based environment
- Implemented A* pathfinding with a modified Manhattan distance heuristic
- Employed a divide and conquer strategy in tandem with pathfinding to outperform other models

Experience

Opensource@Illinois | *Member* August 2024 – Present
- Attended workshops focused on teaching good open source development practices and tools
- Working in a subteam to contribute to various open source projects

SIGpwny | *Member* August 2023 – Present
- Learned various offensive cybersecurity strategies
- Attended weekly meetings and participated in CTF's (Capture the Flag)

FTC (First Tech Challenge) | *Lead Programmer all 7 years* September 2017 – May 2023
- Designed multiple iterations of robot software architecture on embedded systems
- Solved computational problems such as computer vision and motion profiling for automated piloting of robots
- Qualified and competed at state level championship 5 times