

Nicolás Gaffney

Richardson, TX | gaffney_nic@protonmail.com | 903 426 8827 | [linkedin.com/in/n-gaffney](https://www.linkedin.com/in/n-gaffney) | ngaffney.dev

Education

University of Texas at Dallas, Bachelor of Science in Computer Science

Aug 2023 - May 2027

- **Coursework:** Computer Architecture, Programming Paradigms, Data Structures and Algorithmic Analysis, Compiler Design, OS Concepts
- **Organizations:** UTeaD Coffee and Tea Club (*Membership officer*), OpenUTD (*President*), Computer Security Group / CSG (*Officer*)
- **Other:** Dragonlab formal verification workshop (roq proof checking workshop)

Work Experience

Code Tutor, Code Ninjas – Tyler, TX

August 2022 - August 2024

- Teach students from the ages of seven to fifteen about coding through a JavaScript game development setting.
- Present STEM lessons at the public library, increasing business with tech-interested members of the community by 20%.
- Manage high-stress situations effectively maintaining professionalism under pressure while resolving disputes or conflicts among students.
- Enhance student understanding by incorporating real-world examples and hands on activities in lessons, increasing student engagement by 50%.
- Assist students in developing critical thinking skills by presenting complex challenges during sessions.

Code Tutor, iCode – Dallas, TX

August 2025 - Present

- Educate dozens of students in an after school program on a wide range of STEM related subjects.
- Summarize lessons in reports delivered to parents, increasing the likelihood of students returning by 100%.
- Give feedback to managers on lessons and how to improve the organization of educational resources.
- Deliver complex topics in an easy to understand manner to students who struggle with such topics, increasing knowledge retention by 70%.

Projects

Physics based Particle Life Simulator | <https://github.com/nic-gaffney/particle-sim> | *On Hold*

Skills: Zig, Simulation, Graphics, Raylib, imgui, Multi-threading

- Utilized multi threading and a minimalist graphics library to simulate thousands of particles.
- Organized a configurable menu to adjust particles behaviors, creating small "organisms".
- Took advantage of Zig, an emerging technology, to prepare for the future of computer programming.

Linux Shell | <https://github.com/nic-gaffney/gftsh> | *Completed*

Skills: Zig, C, Forks, Signals, Linux

- Using the Zig build system, wrote a Linux shell in C with a number of features.
- Utilized signals to allow the shell to persist after an interrupt signal.
- Implemented globbing, allowing the use of wild cards in the shell.

Operating System | <https://github.com/nic-gaffney/gftos> | *Ongoing*

Skills: Make, C, Assembly, Cross-Compiler, Virtualization, Linker Script, Shell Scripting, Low Level Programming

- Created an operating system capable of taking keyboard input and outputting keystrokes to the framebuffer.
- Worked with the multiboot standard, gaining access to critical hardware information required for booting.
- Implemented printf for the framebuffer, allowing for easy debugging and basic programs.
- *Currently working on multiboot 2 x86_64 OS in a different repository, aiming to create a POSIX compliant OS.*

<https://github.com/nic-gaffney/nyanix>

Sloth | <https://github.com/slothlang/sloth> | *Completed*

Skills: Nix, Rust, LLVM, PLDI, Compiler Development, Inkwell, C

- Designed and implemented a procedural language from scratch
- Implemented programs such as Conways Game Of Life and a Mandelbrot Plotter using the language
- Wrote a custom standard library in C
- Used Inkwell to compile to LLVM IR and later to machine code.

Other Work

Work done for professor

- Created curriculum and 60 second lecture and slides for globbing in regards to a Unix shell.
- Communicated with professor on goals and preferences for the topic involved.

Skills

Soft Skills: Outgoing, Patient, Critical Thinking, Active Listening, Passionate learner

Technical Skills: Linux, C / C++ , Python, LaTeX, Command Line, Vim, Zig, Java, Git, Functional Programming, APL