

PAULINA SANCHEZ

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 [LinkedIn](#) |  [GitHub](#)

EDUCATION

UNIVERSITY OF NORTH TEXAS

Bachelor of Science in Computer Science

Relevant Coursework: Data Structures, Algorithms, Databases, Software Engineering, Artificial Intelligence

Denton, TX

Expected May 2026

WORK EXPERIENCE

FREELANCE BLOCKCHAIN DEVELOPER

Apr 2025

- Contributing to the development of **smart contracts** and **decentralized applications** using the **Solana** platform and **C++**, focusing on enhancing transaction efficiency and scalability in blockchain-based solutions.

PROJECTS

VIRTUAL SWITCH |

Mar 2025

- Engineered a **Layer 2 virtual switch** in **C** and **Python**, enabling **Ethernet frame exchange** across the internet and creating a **LAN-like environment** for remote devices.
- Developed a custom **VPN-like solution** with **TAP device integration**, replicating **Zerotier's functionality** to connect geographically distributed clients and enable seamless communication.

RAYTRACING |

Jan 2025

- Developed a **ray tracing engine** in **C++** with **OpenGL**, implementing core rendering techniques such as **ray-sphere intersections**, **Lambertian reflection**, and **Schlick's approximation** for **realistic lighting**.
- Optimized **ray-object intersection** using **Bounding Volume Hierarchies (BVH)**, reducing **computation time** by **70%**, and streamlined **cross-platform builds** with **CMake**.

SHELL |

Feb 2025

- Designed and implemented a **POSIX-compliant shell** in **C++** with a **Read-Eval-Print Loop (REPL) architecture**, enabling users to interact with the system through commands like **cd**, **pwd**, **echo** and enhancing responsiveness for continuous user interaction.

WEATHER FORECAST APPLICATION |

Dec 2024

- Developed a high-performance, **cross-platform weather forecast application** using **C++** and the **Qt framework**, delivering an intuitive and responsive user interface.
- Integrated a **REST API** to fetch **real-time weather data**, leveraging **JSON** for efficient data processing and dynamic updates, ensuring a seamless and responsive user experience.

PERSONAL WEBSITE |

Dec 2024

- Developed a responsive personal portfolio website using **HTML**, **CSS**, **JavaScript**, and **Bootstrap** with a mobile-first design approach, while configuring **AWS S3** for static hosting, **CloudFront** for content delivery, and **Route 53** for custom domain and SSL setup to ensure secure HTTPS access.

SKILLS

Programming Languages & Scripting: C, C++, Python, JavaScript, SQL, Bash, HTML, CSS, JSON, REST API

Development Tools & Platforms: AWS, Git, GNU Debugger, LLVM, Linux

Frameworks & Libraries: Qt, Bootstrap

Certifications & Training: C++, Python 3, Generative AI, HTML/CSS (Codecademy)

Languages: English (fluent), Spanish (fluent)