PAULINA SANCHEZ

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EDUCATION

UNIVERSITY OF NORTH TEXAS   Denton, TX
Bachelor of Science in Computer Science   Expected May 2026
Relevant Coursework: Data Structures, Algorithms, Databases, Software Engineering, Artificial Intelligence

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)

WORK EXPERIENCE

INDEPENDENT CONTRACTOR   Dec 2024
- Delivered **comprehensive product testing** services, including **bug identification**, **user feedback collection**, and **UI/UX evaluations** for **software and mobile app clients** via Upwork. Provided insights through detailed **testing reports**, helping clients improve product functionality and user experience before launch.

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.