Justin Cruz

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Objective

Computer Engineering major with hands-on experience in Linux system administration, reverse engineering, and network privacy tools. Proficient in analyzing obfuscated malware using IDA Pro and unpacking samples such as Harulf and Lucius. Experienced in VHDL-based hardware design and pipeline processor implementations. Seeking a Spring 2026 internship in cybersecurity, with interests in security operations, threat analysis, reverse engineering, and open to hardware-focused roles.

Education

Georgia Institute of Technology | Atlanta, GA *August 2021 – Present*
Bachelor of Science in Computer Engineering, GPA 2.86 Expected Graduation, May 2026

Skills

Programming: Java, Python, C, C++, SQL, Verilog, VHDL, MIPS, x86 Assembly
Platforms: Linux (Ubuntu), Windows
Hardware: Arduino, ARM mbed microcontroller, FPGAs. Oscilloscope, logic analyzer
Software: Android Studio, Altera Quartus II, NI LabVIEW, GitHub, IDA Pro, OllyDbg, MySQL, SSH, Pi-hole
Communication: Technical reports
Languages: English (fluent), Spanish (native)

Projects

Self-Hosted Ubuntu Server *Spring 2025*
Developer / Personal
Built a server to provide private, centralized access to media and backups. Focused on self-hosting and DNS-level ad blocking to reduce reliance on third-party services and enhance user privacy.

- Installed Ubuntu Server via USB (Rufus) and manually removed pre-installed Windows for clean setup.
- Configured an internal 4TB HDD for expanded storage and media access.
- Deployed Plex Media Server, Minecraft server, and Pi-hole to support multi-user access and DNS filtering.
- Enabled secure remote management through SSH for maintenance and deployment tasks.
- Reduced DNS traffic by ~18% across all active devices, improving network efficiency and enhancing privacy.

WanderSync – Collaborative Travel Planner *Fall 2024*
Backend Developer / Objects and Design
Developed an Android app for collaborative travel planning using Firebase. Focused on backend architecture, real-time data syncing, and shared itinerary management across users.

- Collaborated with a 4-person team using GitHub and Agile sprint cycles to coordinate feature development.
- Designed and implemented Firebase Realtime Database schema to support scalable, multi-user travel itineraries.
- Integrated ViewModel and LiveData for responsive UI updates and real-time collaboration features.
- Enabled seamless data synchronization across devices, supporting shared notes and group editing of travel logs.
- Applied MVVM and observer pattern to enable modular backend logic and maintain app scalability.

Top-Down Shooter on Embedded Platform *Summer 2024*
Developer / Programming HW/SW System
Designed and implemented a real-time shooting game on the ARM Mbed platform using C++ and hardware interface libraries for LCDs and input controls. Built all core logic using custom data structures and low-level memory manipulation.

- Used a NavSwitch and pushbuttons to control player movement and actions in a hardware-based environment.
- Developed and debugged game logic using custom doubly linked list in C++ for dynamic enemy and missile management.
- Created real-time collision detection for sprites and projectiles on an LCD display.
- Integrated physical I/O components including pushbuttons and LCD display.
- Utilized USB serial output for real-time debugging and performance tuning on constrained hardware.

Relevant Coursework

Architecture, Systems, Concurrency, and Energy in Computation: Explored processor architecture, memory hierarchy, and I/O subsystems with a focus on performance and energy trade-offs; analyzed multi-level parallelism and concurrency; introduced threading and basic networking principles; evaluated system-level behavior using architecture-level simulators, providing foundational insight into low-level system vulnerabilities and performance bottlenecks relevant to secure computing.
Intro to Malware Reverse Engineering: Static and dynamic analysis of malware using IDA Pro and OllyDbg; examination of viruses, worms, trojans, and APTs; unpacking, code obfuscation, anti-debugging, and anti-VM techniques, reverse engineering of PE files, RAM analysis, Intel x86 assembly; detection, and remediation strategies including signature generation and behavioral analysis.
Introduction to Enterprise Computing: Studied enterprise-scale computing principles including transaction processing, concurrency control, distributed systems, and microservices; examined design trade-offs between ACID and BASE models, system scalability, and availability guarantees; developed autonomous learning skills through a semester-long solo project applying theory to practice in enterprise system design and analysis.