Martin Sander

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Skills

- Operating Systems: iOS, Windows, Linux
- Programming Languages: C++, Python, Rust, Verilog, x86 Assembly, JavaScript, HTML, CSS, SQL
- Languages: English, Spanish, German

Education

Master of Science　　　　　　　**University of Pennsylvania**　　　　　　**09/2023 – 05/2025**

- Master of Science in Computer and Information Science
- Coursework: Analysis of Algorithms, Statistics for Data Science, Software Analysis, Computer and Network Security, Software Systems, Database and Information Systems, Cryptography, Machine Learning

Bachelor of Engineering　　　　　　　**University of Costa Rica**　　　　　　**03/2019 – 08/2023**

- Bachelor of Electrical and Computer Engineering

Professional Experience

Research Assistant　　　　　　　**University of Pennsylvania**　　　　**United States | 04/2024 – Present**

- Advisor: Sebastian Angel
- Developing privacy-preserving solutions with Rust for Context-Free Grammar documents by leveraging zero-knowledge proofs to ensure data confidentiality and secure validation.

Software Developer　　　　　　　**Wrike**　　　　　　**Costa Rica | 12/2022 – 08/2023**

- Successfully implemented ElasticSearch in the help center website, enabling users to search through help articles, guides, videos, and more. This system, utilizing our existing MySQL database, not only improved search accuracy by 20% but also enabled predictive search capabilities, enhancing the user experience.
- Automated existing tools to scale alert processing and detect bot spam on webforms tailored for user problems and requests.
- Optimized and maintained the codebase through lazy loading and browser caching using vanilla JavaScript, resulting in a 20% increase in loading speed across different pages inside the Help Center.

Software Developer　　　　　　　**Drip Studios**　　　　　　**Costa Rica | 10/2021 – 11/2022**

- Designed and developed an NFT project's website, integrating Solidity smart contract for token transactions, generating over $1.8M in revenue.
- Led the design and development of the marketplace application, focusing on fetching data using the OpenSea API to access all tokens in the collection and implementing Solidity smart contracts for Ethereum blockchain transactions and wallet interactions.

University Projects

Software Systems　　　　　　　**University of Pennsylvania**　　　　**United States | 01/2024 – 05/2024**

- Led the design and implementation of the SMTP server and frontend server for PennCloud, a distributed cloud service platform. Integrated these components with a Bigtable-like backend. Ensured robust load balancing and fault tolerance.

Software Analysis　　　　　　　**University of Pennsylvania**　　　　**United States | 08/2023 – 12/2023**

- Implemented the mutation functions for FuzzBuzz, a comprehensive fuzz testing program. This involved developing algorithms to generate mutation-based tests for identifying out-of-bounds vulnerabilities in Python programs, driving improvements in code coverage through dynamic analysis feedback mechanisms.

CTF and Courses

pwn.college　　　　　　　**Arizona State University**　　　　**United States | 05/2024 – Present**

- Intro to Cybersecurity (TLS/SSL, Diffie-Hellman, RSA, TCP, IP, OSI Model, Scripting)