Giovanni Santini

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Education

BS **University of Trento**, Computer Science — Sept 2022 – Now

- **Coursework:** Computer Architecture, Operating Systems, Parallel Computing, Algorithms and Data Structures, Databases, Networking, Software Engineering, Calculus 1, Introduction to Computer and Network Security, Formal Languages and Compilers, Probability, Programming 1 and 2, Advanced Programming, Physics 1, Functioncal Programming, Linear algebra, Mathematical Foundations for Computer Science, Introduction to Web Programming, Logic, Introduction to Machine Learning

Cyberchallenge, Cybersecurity CTF Course and Competition — March 2021 – July 2021

- I actively participated in the cybersecurity course *Cyberchallenge* in 2021, held at the Università Politecnica delle Marche, achieving *first place* in the internal competition and qualifying for the national Attack and Defense competition. The course introduced me to the fundamental concepts of cybersecurity with a hands-on approach through the CTF (Capture The Flag) format.

Projects

Hive-ebpf kubernetes operator — github.com/San7o/hive-operator

- I am developing an eBPF-based inode access logging tool for kubernetes clusters. The project is supervides by Bruno Crispo from the University of Trento.
- **Languages and Frameworks**: C, Go, Kubernetes, eBPF

Baldo Scanner — github.com/San7o/Baldo-Scanner

- I developed an antivirus damenon written in C++ and a linux kernel module. It incorporates static malware analysis capabilities through signatures and rules, a simple kernel level firewall, a sandboxed execution environment, and a kernel module to collect information about calls to system calls.
- **Languages and Framewroks**: C, C++, kprobes, netlink, character devices, sqlite, cmake

santOS — github.com/San7o/santOS

- A general purpose operating system, currently supporting the i386 architecture. This project aims to build a full operating system with networking, filesystem, scheduler, IPC and userspace on multiple architectures. Currently the project is in Its early stages and I will keep working on It during my spare time.
- **Languages and Framewroks**: C, bios, make

Certifications

NVIDIA, **Fundamentals of Accelerated Computing with OpenACC**, Hackathon 1° place — Dec 2024

- I partecipated in a two days workshop introducing the basics of accelerated computing using OpenACC, a powerful directive-based programming model. I learned how to optimize and parallelize code to fully leverage the capabilities of modern GPUs and CPUs.
- The event ended with an hackathon about optimizing a machine learning model, I achieved first place.