LEONARDO **VICENTINI**

Software Engineer

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"Learning never exhausts the Mind." — Leonardo da Vinci

Skills

Programming Python, Java, JavaScript, C, Solidity
Technologies SQL (MySQL, PostgreSQL), MongoDB, Redis, Node.js, Linux, Bash, Git, Docker, Kubernetes Prometheus, Grafana
Languages English, Italian (native)

Education

University of Trento — *Trento, Italy*

Master's degree in Computer Science (English) — Final GPA: 29.73/30 — *Sep. 2021 — Present*

- Relevant courses: Distributed Systems, Cloud Computing, Service Design, Security Testing, Blockchain, Data Mining, HPC

Bachelor's degree in Computer Science — Final grade: 106/110 — *Sep. 2018 — Sep. 2021*

- Relevant courses: Algorithms & Data Structures, Software Engineering, OOP, Operating Systems, Databases, Networks, HCI, ML

Work Experience

ESA – European Space Agency (European Space Operations Centre) — *Darmstadt, Germany*

Software Engineer Intern - Cloud & Infrastructure — *Apr. 2024 — Jul. 2024*

- Delivered a Service Status Board with a GitLab CI/CD pipeline to validate critical metadata related to incidents and interventions on critical operational systems and services (servers, VMs, networks) used across 3 Space Mission Operations teams within ESOC.
- Designed a Performance Dashboards system based on Prometheus, Grafana and several data exporters, resulting in an end-to-end solution that includes data extraction from 10+ heterogeneous data sources (internal APIs, VMware APIs, etc.)
- Implemented data analysis and visualization with 15 dashboards to monitor the health and performance of key infrastructure services.
- Leveraged Ansible for secure deployment automation of some system components, such as Prometheus Node Exporters on 10s of VMs spread across the Operations Local Area Networks.
- Deployed 3 instances of the Performance Dashboards system following a cloud-native approach with Kubernetes and Helm.

FIPIC – Italian Wheelchair Basketball Federation — *Rome, Italy (Remote)*

Software Engineer Intern - Backend — *Feb. 2021 — Jun. 2021*

- Co-led a 4-member team in developing a Federation's historical data and multimedia archive, reducing the estimated project completion time by 50% through customer-centered development strategies.
- Elicited comprehensive requirements from 8+ diverse stakeholders, demonstrating strong communication and analytical skills.
- Contributed to the design of a data pipeline based on the ELK stack to build 4 dynamic data visualization dashboards.
- Designed and implemented 70+ RESTful endpoints on a Node.js server to perform CRUD operations against a MySQL database.
- Created a multimedia collector component by leveraging Google Drive APIs and OAuth 2.0 authentication.
- Deployed and configured the entire system on a dedicated Ubuntu server using NGINX, UFW and PM2.

Projects

ProjectsChain — Ethereum-based CAD designs marketplace

Solidity, web3.js, Node.js, Docker, Redis, IPFS — [**Code** | **Report** | **Demo**]

- Defined and developed the backend layer and 2 smart contracts for an NFT marketplace with a royalty-based compensation scheme.
- Built a web server and related RESTful APIs (11 endpoints) that performs CRUD operations against a properly configured Redis database, integrated and secured by a specifically adapted digital signature mechanism.

Daytrip — service-oriented web app for daytrips suggestions in Italy

Docker, Python, Flask, Node.js, NGINX, MongoDB — [**Code** | **Report** | **Demo**]

- Responsible for the design and implementation of 14 out of 19 services (managed with Docker Compose), spanning from data layer to business logic and process centric services that fetch, transform and elaborate data to suggest destinations to users.
- Architected a recommendation algorithm using data from 4 public APIs, including TomTom, OpenStreetMap, and others.
- Streamlined a solution using AWS Lambda to address Docker issues on a core service, decreasing deploy failures from 66% to ∼0%.

Multi-level distributed cache

Java, Akka — [**Code** | **Report**]

- Designed 4 main operation protocols (Read, Write, Critical Read, Critical Write) along with the other team member.
- Implemented Critical Write, Crash Detection and Recovery algorithms essential for the goal of the simulated distributed system.

Extracurricular

Bertinoro International Center for Informatics — *Venice, Italy*

BUCA '24 ("Challenges in building Billion Users Cloud Applications") — Intensive fall school — *Oct. 2024*

- Topics: system design, scalability, load balancing, data replication for high availability, LLMs optimization. Selected for scholarship.

University of Southern Denmark — *Odense, Denmark*

CubeSat 101 — International Summer School on Satellites — *Aug. 2024*

- Topics: on-board data handling, CubeSat space protocol, payload computer & software, mission operations. Selected for sponsorship.