ANDREA MARINO

Software Engineer

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PROFILE SUMMARY

I am a 27-year-old software engineer from Rome, Italy. While I have invested a good part of my academic years exploring the research environment (in NLP, Bioinformatics, and SW Engineering), through my hands-on work experience as a web and mobile developer, I have discovered an ambition for designing and building complex, maintainable, and testable systems using cutting-edge technologies. As a maintainer of most of the software I have built, I am also aware of and fascinated by the operational side of SW Engineering spanning from CI/CD pipelines to containerization and orchestration frameworks. As of today, I wish to further my understanding of these concepts at scale.

PROGRAMMING LANGUAGES

- **Python** (proficient)
- **JavaScript**/**TypeScript** (proficient)
- **Java** (experienced)
- **C** (experienced)
- **Rust** (familiar)
- **Go** (familiar)

EDUCATION

University of Amsterdam (UvA) & Vrije Universiteit (VU), Amsterdam — *MSc in Computer Science*

FEBRUARY 2021 - PRESENT

Currently enrolled in the MSc in Computer Science on the Software Engineering and Green IT track with a GPA of **8.8/10** (only thesis project left before graduation).

Sapienza University, Rome — *BSc in Computer Science*

OCTOBER 2016 - OCTOBER 2020

Graduated with a grade of **110/110 cum laude**. Thesis: 'Construction and Analysis of a directed graph for the representation of biological pathways'.

Northwestern University, Chicago — *Global Economy, Summer Program*

JULY 2014 - AUGUST 2014

Attended the Global Economy class at the **Center for Talent Development** at Northwestern with a final score of **95%**.

WORK EXPERIENCE

KPMG Netherlands, Amsterdam — *Thesis Intern*

FEB 2024 - AUG 2024

I am conducting my thesis project at KPMG as part of the Digital Enablement team. Here I am exploring different paradigms for user-centric policy-based networking and packet routing. I am in the process of implementing a proof of concept for the Responsible Internet proposal using state-of-the-art network protocols like SCION and the newly proposed norm-formalization domain language eFLINT.

Vrije Universiteit (VU), Amsterdam — *Teaching Assistant*

MARCH 2022 - PRESENT

I worked in the 'Software Testing' 2022 and 2024, 'Digital Architecture' 2022, and 'Software Containerization' 2023 classes. I was responsible for grading projects, conducting lab sessions, and reviewing the course structure.

University of Amsterdam (UvA), Amsterdam — *Teaching Assistant*
MAY 2023 - JUNE 2023

I worked in the '[Web Services and Cloud-Based Systems](#)' 2023 class. I was responsible for grading software projects, conducting lab sessions, and reviewing the course structure.

RIMUN, Rome — *Full-stack Web Developer and Webmaster ([rimun.com](#))*
SEPTEMBER 2018 - MARCH 2023

Solo-developed a management web application (and landing page) for the **Rome International Model United Nations**, an assembly simulation attended by high school students worldwide. Assisted the team and frequently updated the software in the following years. This project relies on a similar tech stack to what is described for 'Pronto Sinistro' (later in my personal projects section), in addition, it also included Python [Flask](#)-based and PHP-based services in the past before it reached its current stage.

Università La Sapienza, Rome — *Research Assistant*
2019 - 2020

I worked on graph representations of biological pathways in Python and related network analysis algorithms implemented using a custom wrapper for the [NetworkX](#) library.

BabelScape, Rome — *Software Developer Intern ([babelscape.com](#))*
OCTOBER 2017 - JANUARY 2018

Developed **word disambiguation CLI** using Java for measuring weighted cosine similarity between **[NASARI](#) semantic vectors**, used to match words with relative synsets in Natural Language Processing (NLP).

PERSONAL AND ACADEMIC PROJECTS

Pronto Sinistro, Rome — *Startup*
JANUARY 2021 - PRESENT

I am currently in the final stage of solo-developing a cross-platform mobile application that supports users in the legal process following a car accident in collaboration with a [law firm](#) based in Rome. I also implemented a web dashboard for the lawyers to interact with users through a dedicated control panel. This project consists of the following services/applications which are representative of the technologies I am currently most familiar with:

- A **Node.js** TypeScript stateless **backend API** exposing validated and type-safe queries and mutations via [tRPC](#). The server is implemented with [Express.js](#) (plus relevant plugins such as request rate and size limiting), authentication and static file storage are supported via [Firebase](#), data persistence is implemented with the cross-DBMS [Prisma ORM](#) over a Postgres DB, and the RPCs are tested using [Jest](#) and leveraging *dependency injection* in a *[hexagonal-like](#)* architecture style. Finally, the service is deployed with autoscaling on Google Cloud Run (GCR) using GitHub Actions and Docker.
- A **React** management **web application** that acts both as a dedicated admin CMS for static content and as a domain-specific dashboard. The project is built using the state-of-the-art bundler [Vite](#) (with Rollup). API calls are end-to-end type-safe thanks to the tRPC backend definitions and locally cached via [TanStack Query](#). Deployment relies on a simple NGINX-based Docker image which serves the optimized application on GCR.
- A **React-Native** mobile application for end-users fully written in TypeScript thanks to the [Expo](#) platform which also allows for over-the-air (OTA) updates and cross-platform deployment. The application makes use of external APIs such as Google Maps and Google Places (Geolocation), supports push notifications, and validates user input on the client side using [Zod](#). API calls are handled (and cached) similarly to the web application.

EquiCity — *Startup ([equicity.nl](#))*
SEPTEMBER 2022 - MARCH 2023

I participated in the early development phase of a startup project aiming to use deep learning for public transportation network optimization. I was involved in meetings with potential customers and investors including NS, Gemeente Amsterdam, and Gemeente Vervoerbedrijf (GVB). After several months, my co-founder and I abandoned the project due to the lack of a proper market fit. This was still a precious experience for both of us.

Stargate-X — *Python graph implementation of Reactome's pathway information ([GitHub](#))*
JUNE 2020 - SEPTEMBER 2022

Developed and maintained a directed bipartite multigraph Python implementation of Reactome's **biological pathway** information as part of my Bachelor's internship and ongoing research activity.

Curiosone Bot — *Conversational learning chatbot ([curiosone-bot.github.io](#))*
JUNE 2017 - SEPTEMBER 2017

Developed (along with the other 10 top students from my BSc 'Objected Oriented Programming' class) a chatbot capable of parsing sentences with a simplified Chomsky CFG and learning from conversations through [Babelnet](#)'s **semantic network** and other basic NLP techniques.

Other smaller projects can be found on my GitHub profile. They include simple React component libraries, a small Rust OpenGL renderer engineer, contributions to a community-developed game, and academic projects.

PUBLICATIONS

On the Energy Consumption and Performance of WebAssembly Binaries across Programming Languages and Runtimes in IoT
Association for Computing Machinery ([dl.acm.org](#))

STARGATE-X : a Python package for statistical analysis on the REACTOME network
Journal of Integrative Bioinformatics ([degruyter.com](#))

VOLUNTEERING & SOCIAL SKILLS

Student Representative - Liceo Classico Lucrezio Caro (High-school)
SEPTEMBER 2014 - JULY 2015