Alessandro **Minisini**

M.Sc. Student in Computer Science

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Education

Scuola Superiore Universitaria di Toppo Wassermann
Udine, Italy

Second-level Master's degree — *Sept. 2021 - Now*

- GPA: 30/30.
- The School for Advanced Studies of the University of Udine is a higher learning institution based on merit (10% admission rate).
- Relevant courses: Algorithms for massive data, Lambda calculus, Constraint programming, Graph isomorphism theory.

University of Udine
Udine, Italy

M. Sc. in Computer Science — *Oct. 2024 - Now*

- GPA: 30/30.
- Relevant courses: Computability theory, Complexity theory, Automated Reasoning, Formal Verification, Distributed Systems and Algorithms, Operations Research.

University of Udine
Udine, Italy

B.S. in Computer Science — *Sept. 2021 - Oct. 2024*

- GPA: 29.3/30. Graduated with 110/110 cum laude.
- Research thesis: *Co-lexicographically Ordering Automata: the Hasse Automaton* (supervisor: prof. Alberto Policriti).

Projects

AI Safety Research Fellowship
Remote

Apart Research — *May. 2024 - Dec. 2024*

My team focused on integrating formal methods with large language models. We designed an MVP for a new cybersecurity benchmark and developed a provably correct sandbox for evaluating attacks on security protocols. Additionally, our research work, *CryptoFormalEval*, was presented at the System2-Reasoning Workshop at **NeurIPS 2024**.

Predecessor function in Lambda Calculus
Udine, Italy

Short thesis for Scuola Superiore (Supervisor: prof. Fabio Alessi) — *Jul. 2023 - Oct. 2023*

Survey on the solutions to the predecessor problem in lambda calculus. This work aims to describe various perspectives on the problem and compare them using a simple metric on lambda terms' normal form.

Longest common prefix sketch and application to Lempel-Ziv compression algorithm
Udine, Italy

Research project at Scuola Superiore (Supervisor: prof. Nicola Prezza) — *Jul. 2022 - Oct. 2022*

The research project originated from the *Algorithms for Massive Data* course and aimed to find a space-efficient representation of strings that can approximate the longest common prefix between them. The result is a sketch that, with high probability, allows the calculation of this measure in an approximate form. This sketch was implemented and tested on real datasets as a support structure for the Lempel-Ziv 77 compression algorithm.

Honors & Awards

International

2024	**Contestant, 22th place,** ICPC Southwestern Europe Regional Contest	*Paris, Italy*
2023	**Contestant,** ICPC Southwestern Europe Regional Contest	*Milan, Italy*
2020	**Contestant,** Central European Olympiads in Informatics	*Online*
2020	**Contestant,** Romanian Masters in Informatics	*Online*

National

2021	**Silver Medal,** Italian Math Olympiads	*Cesenatico, Italy*
2021	**6th place,** Italian Informatics Olympiads in Teams	*Bologna, Italy*
2020	**Silver Medal,** Italian Olympiads in Informatics	*Remote*
2019	**Silver Medal,** Italian Olympiads in Informatics	*Matera, Italy*

Extracurricular Activity

Quantum Code Challenge
Remote

CRS4, DLAB — *Oct, 22-25 2024*

The hackathon, hosted on the qBraid platform, involved solving algorithmic challenges related to quantum computing, quadratic optimization, and quantum machine learning. My team **ranked first** among 15 participating teams.

Competitive programming trainer

Udine, Italy

University of Udine

2022-Now

I conducted competitive programming classes for university students, providing exercises and materials. I also organized a training contest that was useful for the selection of the **SWERC** teams.

Cp-algorithms contibutor

cp-algorithms.com

I have contributed to the website cp-algorithms.com, a comprehensive resource for competitive programmers, by writing an article on the Hungarian algorithm (link here). I plan to write more articles on data structures that I am studying.

First Ascent by Bending Spoons

Lisbon, Portugal

Selected student

April 2024

I have been selected as one of the 20 Italian students who have been to a four-day retreat in Lisbon to meet industry experts from Bending Spoons and attend conferences on software engineering topics.

International Olympiads in Informatics training program

Volterra, Italy

Selected student

2019-2020

- I have been selected to participate in the Italian training program for the International Olympiad in Informatics.
- I attended competitive programming lessons (mainly regarding algorithms and data structures) and participated in selection competitions for the Italian team.
- I managed to qualify for the **CEOI** (Central-European Olympiads in Informatics) and the **RMI** (Romanian Masters in Informatics) for the year 2020.