

Roberto Pettinau

PROFILE

I'm a passionate Computer Science student with a focus on Formal Verification, Cryptography, Programming Languages and Smart Contracts.

EDUCATION

MSc. in Computer Science & Engineering 2022 – 2024 | Kgs. Lyngby, Denmark
Technical University of Denmark

I am currently studying Computer Science at DTU, with a particular focus on programming languages, cryptography, and formal verification. Here I've taken courses such as *Program Verification* [↗](#), *Program Analysis* [↗](#), *Model Checking* [↗](#), *Automated Reasoning* [↗](#), *Modern Cryptology* [↗](#), *Compiler Construction* [↗](#), *Advanced Analysis Techniques* [↗](#) and the special courses *User Friendly Automated Reasoning* and *Verification of Concurrent Programs*.

BSc. in Computer Science 2018 – 2021 | Cagliari, Italy
University of Cagliari

During my studies at UniCa I participated in numerous projects where I had the opportunity of gaining practical knowledge on cybersecurity, cryptography and blockchain. I graduated with a thesis titled "*AlgoML: a modelling language for Algorand smart contracts*" with a final grade of *110 cum laude*.

PROFESSIONAL EXPERIENCE

Teaching Assistant 2023 – present | Kgs. Lyngby, Denmark
Technical University of Denmark

In the Autumn semester of 2023-2024, I have been teaching assistant of the courses

- Program Verification [↗](#)
- Logical Systems and Logic Programming [↗](#)

Academic Employee 01/2023 – 12/2023 | Kgs. Lyngby, Denmark
Technical University of Denmark

In the year 2023 I have worked in the Software Systems Engineering section at DTU Compute, helping with research on tools for fuzzing and verifying C programs.

Analysis of Algorand Smart Contracts 07/2023 – 10/2023 | Cagliari, Italy
University of Cagliari

My work on this project for the University of Cagliari entailed the development of multiple Algorand Smart Contracts, the development of a tool for the analysis of their cost of execution, and writing a report on how transaction fees work in the Algorand Blockchain, in relation to the previously executed experiments.

Lead Blockchain and Backend Developer 09/2021 – 10/2022 | Remote
DeCash

At DeCash I've designed, implemented and deployed core portions of the DeCash ecosystem in the form of PyTEAL contracts and NodeJS backends. DeCash Send [↗](#), DeCash API [↗](#)

PROJECTS

AlgoML 2021 – 2022

AlgoML is a DSL for specifying Algorand smart contracts, which compiles into TEAL scripts. This language features a set of functionalities that make it easier and safer to use than its alternatives. The project won the Schelling Point Virtual Hackaton for Algorand developer tooling, where it was awarded a prize of 7500 ALGOs (~5000 EUROS). This project has gained the interest of the Algorand Foundation, and has applied for funding for the developer tools SupaGrant.

Srdnlen 2020 – 2022

From 2020 to 2022 I've been part of the sardinian CTF team *Srdnlen*, where we have participated in international "Capture The Flag" competitions; my main focus has been on cryptographic vulnerabilities. In 2021 the team was the 3rd Italian team according to CTFtime.org [↗](#). With the team, I've also had the opportunity of teaching cybersecurity and exploitation of cryptographic protocols to university students.