# Federico Bonafini

**Email:** federico.bonafini@phd.unipd.it

**Date of birth:** 13 May 2001 **Nationality:** Italian

## ABOUT ME

PhD student at the University of Padua, enrolled in the Doctoral School and funded by the Italian National Cybersecurity Agency (ACN). My research focuses on satellite communication security, with emphasis on physical layer security (PLS) and the integration of Quantum Key Distribution (QKD) in non-terrestrial networks.
Through my studies in cybersecurity, I have gained experience in both theoretical and practical aspects of designing and evaluating secure computer systems. My practical skills come from various projects assigned during university courses and CTF (Capture The Flag) challenges where I strengthened my abilities in penetration testing.
I have a strong passion for science and enjoy tackling new challenges, as they provide opportunities for continuous learning and growth.

## WORK EXPERIENCE

***University of Padua (PhD funded by the National Cybersecurity Agency – ACN)***

**City:** Padua | **Country:** Italy

[ 1 Nov 2025 – Current ]

### Doctoral student in satellite communication

Main Research Topics:

- Security of satellite communication and networks
- Security of communication systems and devices
- Quantum Key Distribution (QKD) for satellite networks

Main Fields of Interest:

- Radio Frequency (RF) and Free-Space Optical (FSO) communications
- Physical Layer Security (PLS)
- Quantum computing and cryptographic security
- Software security

Supervisor: prof. Mauro Conti, Co-Supervisor: prof. Simone Soderi

## EDUCATION AND TRAINING

[ 1 Oct 2023 – 25 Jul 2025 ]

### Master's degree in Cybersecurity

***University of Padua, Italy***

**Field(s) of study:** LM66: Cybersecurity | **Final grade:** 110 cum laude | **Thesis:** Cybersecurity Threats in Port Logistics Systems and Stowage Plans

Main skills acquired:

- Strong knowledge of encryption algorithms and number theory applied to modern crypto-systems
- Advance notion of information security with critical thinking in the evaluation and comparison of different mechanisms, and application of general models to particular instances
- Network, software, cyber-physical and Android security
- Practical skills in reverse engineering, static and dynamic analysis
- Awareness of quantum information and security
- Understanding of ML (Machine Learning) and DL (Deep Learning)
- Familiarity with NIST and OWASP frameworks

[ 1 Oct 2020 – 11 Jul 2023 ]

### Bachelor's degree in Computer Science

***University of Verona, Italy***

**Field(s) of study:** L31: Computer science | **Final grade:** 110 cum laude | **Thesis:** Study and implementation of Quantum Cryptography

Main skills acquired:

- Computer Science skills:
  a. Software and hardware architecture
  b. Information systems and database
  c. Algorithms and data structures
  d. Automa theory and computability
- Quantum mechanics, application to cryptography developing an application in Python for *Quantum Key Distribution* demonstration

## LANGUAGE SKILLS

**Mother tongue(s):** Italian

**Other language(s):**

### English

**LISTENING** C1 **READING** C1 **WRITING** C1

**SPOKEN PRODUCTION** C1 **SPOKEN INTERACTION** C1

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*

## COMPUTER SKILLS

**List of used program languages**

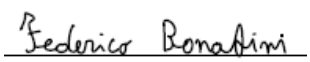
- C/C++
- Rust
- Python
- Java
- Assembly
- SQL

**Operating systems**

- Windows
- Linux

**Tools**

- LaTeX
- Office
- MatLab



1 Jan 2026

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