



Letizia D'Achille

CONTACTS

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EDUCATION

MASTER'S DEGREE IN MATHEMATICS | CRYPTOGRAPHY CURRICULUM

UNIVERSITY OF TRENTO

Sep 2022 - Ongoing | Trento, Italy

Master's degree in Mathematics with emphasis on computational algebra, coding theory and cryptography

GPA: 30 / 30

BACHELOR'S DEGREE IN MATHEMATICS | COMPUTATIONAL CURRICULUM

UNIVERSITY OF PISA

Sep 2018 - May 2022 | Pisa, Italy

Final grade: 110 / 110 Cum Laude

Thesis: 🌀 Linear algebra on modules and Buchberger's algorithm

Supervisor: Professor Massimo Caboara

SCIENTIFIC HIGH SCHOOL | APPLIED SCIENCE CURRICULUM

LICEO SCIENTIFICO "P. RUFFINI"

Sep 2013 - Jul 2018 | Viterbo, Italy

Final grade: 100 / 100 Cum Laude

HONOURS AND AWARDS

- 2022 **De Componendis Cifris** scholarship for students of Master's Degree in Mathematics - Cryptography Curriculum
- Winner of the only scholarship awarded among all applicants
 - Awarded on the basis of a selection made through a written test on topics in Algebra
 - Maintained by achieving excellent academic results and participating in monthly seminars
- 2018 **INDAM** scholarship for students enrolled in courses of study in Mathematics
- Awarded on the basis of a selection made through a written test on topics in Mathematics

PERSONAL SKILLS

LANGUAGES

Italian (Mother tongue) • English (C1 Level) • French (Basic)

PROGRAMMING LANGUAGES

Python • Java • C • C++ • Matlab • MySQL (Basic)

COMPUTER ALGEBRA SYSTEMS

Magma • CoCoA

MARKUP LANGUAGES

LaTeX • HTML (Basic)

OTHER SKILLS

- Proficient in Microsoft Word, Excel and Powerpoint
- Proficient in both Microsoft Windows and macOS environments
- Competent in Linux environment

ACADEMIC INTERESTS

As a master's student in Cryptography, my studies have focused on the fusion of mathematical theory and real-world applications, specifically on coding theory. A deep curiosity has guided my academic journey to understand error-correcting codes, their applications in secure communication, and their mathematical foundations. My main areas of interest and expertise include computational algebra, number theory, and programming.

PROJECTS

MASTER'S DEGREE

- Algebraic Cryptography - 🔗 Kasumi and Coppersmith's Index Calculus (Magma)
- Scientific Computing - 🔗 Study of fundamentals of numerical analysis (Python)

BACHELOR'S DEGREE

- Algorithms and Data Structures - 🔗 Urban route planner (C++)
- Computational Lab - 🔗 Burrows-Wheeler transform of finite automata (C++)
- Scientific Computing - 🔗 Arnoldi-PET algorithm for PageRank (Matlab)

WORK EXPERIENCE

TUTOR

University of Trento

Sep 2023 - Ongoing | Trento, Italy

Tutoring for students of the BSc in Mathematics and Physics

- Designing specific support for students
- Guiding the students in the correct reasoning
- Addressing weaknesses and areas of improvement

Subjects: Geometry (BSc Mathematics), Geometry (BSc Physics)

EXTRACURRICULARS

HPC COURSE

University of Trento

June 2023 | Trento, Italy

Short course on High Performance Computing: introduction to parallel programming with hands-on sessions using Python

PQCIFRIS 2022

University of Trento

Oct 2022 | Trento, Italy

School and Workshop on Post-Quantum Cryptography

PHC | SYSTEMS ADMINISTRATOR

University of Pisa • Department of Mathematics

Dec 2018 - May 2022 | Pisa, Italy

- Member of a group of technicians that maintains a network of Linux computers and offers services for mathematics students
- Maintenance of the web server poisson.phc.dm.unipi.it

ITALIAN MATHEMATICAL OLYMPIADS

2014 - 2018

Participation in several editions, both in individual and team competitions

GCMUN | DELEGATE

Feb 2018 | New York, NY

International Model UN conference

I hereby authorize the use of my personal data in accordance with Art. 13 GDPR 679/16.

Trento, 31st October 2023

Letizia D'Achille