



# Letizia D'Achille

## CONTACTS

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## SKILLS

### PROGRAMMING

Proficient:

C • C++ • Matlab • CoCoA

Basic:

Python • PHP • Javascript • OCaml • MySQL

### MARKUP

LaTeX • HTML (Basic)

### LANGUAGES

Italian (Mother tongue) •  
English (B2 Level) • French (Basic)

### OTHER SKILLS

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

## COURSEWORK

### UNDERGRADUATE

- Arithmetic (30)
- Algebra 1 (30)
- Algorithms and Data Structures (30L)
- Computational Lab
- Scientific Computing (30L)
- Programming languages with laboratory (27)
- Elements of set theory (27)
- Numerical Methods for ODEs (30L)
- Operational research (30)

## ACADEMIC INTERESTS

Computational algebra • Programming •  
Cryptography • Number theory •  
Numerical analysis

## EDUCATION

### MASTER DEGREE IN MATHEMATICS

| CRYPTOGRAPHY CURRICULUM - STAGE ORIENTED

UNIVERSITY OF TRENTO

Lug 2022 - Ongoing | Trento, Italy

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

### BACHELOR DEGREE IN MATHEMATICS

| COMPUTATIONAL CURRICULUM

UNIVERSITY OF PISA

Aug 2018 - May 2022 | Pisa, Italy

Graduation mark: 110 / 110 Cum Laude • a.y. 2020/21

Weighted average: 28.76 / 30

### LICEO SCIENTIFICO

| OPZIONE SCIENZE APPLICATE

LICEO SCIENTIFICO "P. RUFFINI"

Sep 2013 - Jul 2018 | Viterbo, Italy

Graduation mark: 100 / 100 Cum Laude

## BACHELOR'S THESIS

### ALGEBRA LINEARE SU MODULI E ALGORITMO DI BUCHBERGER

LINEAR ALGEBRA ON MODULES AND BUCHBERGER'S ALGORITHM

Supervisor: Professor Massimo Caboara

Description:

Analyzing the computation of the normal form of a module via Buchberger's algorithm, we compare this procedure with the Gauss and Euclidean algorithms, and we study it as a tool for computing operations between modules. We provide a unified treatment of the theory, in which systematic comparisons have been developed from considerations that are not generally formalized in literature. The work is supported by examples developed using CoCoA.

🔗 [Link to thesis](#)

## PROJECTS

### UNDERGRADUATE WORK

UNIVERSITY OF PISA

- 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)

## AWARDS

2018 **INDAM** scholarship for enrollment in courses of study in Mathematics

## CERTIFICATIONS

### **FCE | CAMBRIDGE ENGLISH**

Jun 2017

Grade: 179/190

### **1ST TERM SOLFEGGIO**

ISTITUTO SUPERIORE "G. BRICCIARDI"

Jul 2013 | Terni, Italy

Reading, Theory, Dictation, Ear Training

## EXPERIENCE

### **SPORTELLLO AMICO | TUTORING**

Liceo Scientifico "P. Ruffini"

2015 - 2018 | Viterbo, Italy

Tutoring for students of secondary school

## OTHER INTERESTS

Computers • Video games •  
Board games • Trekking • Piano •  
Travelling

## EXTRACURRICULARS

### **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 various services for mathematics students
- Maintenance of the web server `poisson.phc.dm.unipi.it`

### **OLIMPIADI ITALIANE DELLA MATEMATICA**

2014 - 2018

Participation in several editions, both in individual and team competitions

### **GCMUN | DELEGATE**

Feb 2018 | New York, NY

International Model UN conference

### **SUMMER SCHOOL MATH&MORE**

Convitto Nazionale "Principe di Napoli"

Sep 2016 | Assisi, Italy

- Summer camp for development of excellence in mathematics
- One of two students selected to attend the school