Giacomo Borin

Curriculum Vitae

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EDUCATION AND TRAINING

SEPT 21 – CURRENT

Università di Trento
Master of science in Mathematics, Curriculum Cryptography and Coding theory

I am attending lectures regarding mathematical subjects related to modern cryptography. For instance Finite Fields, Coding Theory, Computational Algebra, Algebraic Geometry, Number Theory and Stochastic processes. I also have studied implementations of cryptographic primitives (for example in MAGMA).
I am also following courses about real world applications of cryptography, in which we discuss issues in computer and network security, protocols, privacy, access control, public key infrastructures, protocol verifications, data hiding and other topics.

SEPT 18 – JULY 21

Università di Trento
Bachelor's degree in Mathematics

Tesi: The Containment Problem, a general introduction and the particular case for Steiner systems
Final mark : 110/110 cum Laude

I've followed lectures about the principal topics of mathematics: analysis, topology, numerical analysis, probability and statistics, number theory, geometry, algebra (linear and abstract). In particular, I've focused on the last one, studying commutative algebra, Galois theory, Group theory, Field Theory, Algebraic number theory and Algebraic geometry. Also, I've studied physics and programming (Java, Matlab, Sagemath).

SEPT 12 – JULY 18

IIS Leonardo da Vinci Cerea
Maturità scientifica, (Italian high school diploma with scientific orientation)

Final mark: 100/100

MAY 22

De Cifris
De Cifris trends in modern Cryptography

Series of lectures on the hot research topics for the cryptographic Italian community (for example post quantum cryptography and multiparty computation), both from academic and enterprise point of view. The lecturers came from 20 different universities. At the end of the course there were an exam.

HONOURS AND AWARDS

OCT 21 — **Scholarship Advisory board *De Cifris***
Telsy and *De Cifris*

SEPT 21 — **Pupil at *Collegio di Merito Bernardo Clesio***
Collegio di Merito Bernardo Clesio

OCT 18 — **INDAM Honours Scholarship for Bachelor's degree in Mathematics**
Istituto Nazionale di Alta Matematica

JAN 17 — **Scholarship for international exchange summer program in Japan**
ALI and *AFS Italy*

JULY 15 AND JULY 17 — **Scholarship Rotary**
Rotary club Cerea

DIGITAL SKILLS

I have experience with different programming languages, studied both for academic and personal reasons.
I mainly use with confidence **Python**, Sagemath (a CAS based on Python) and MAGMA, usually for cryptography and coding theory.
I have studied (both in university and high school) and I know object oriented programming (mainly in Java). I know and I use also **C**, R, **Java** and **MatLab**.
I have familiarity with LaTeX, vi (neovim) and the Unix terminal, if needed I can also use the Office suite.
Some of my projects can be seen on my site and on my **GitHub**.

WORK EXPERIENCE

SEPT 21 – CURRENT

Università di Trento
Graduate teaching assistant

2021 : GTA for Linear Algebra course for undergraduate students in Mathematics and Physics.
2022 : GTA for Linear Algebra and Calculus courses for undergraduate students in Mathematics.

JUNE 2016

Studio Gaio Rag. Maria
Stage in an accounting firm

I stayed in different team responsible for tax filing, accounting and invoicing.
Gained experience for countability and teamwork skills.

JUNE 2015

Comune di Casaleone
Stage in municipal library

I was responsible for digital categorisation and sorting of books.
Gained discipline and time managing skills.

LANGUAGE SKILLS

ITALIAN	Mother tongue	
ENGLISH	C1	(understanding and production)
GERMAN	A1	(personal study)

VOLUNTEERING

OCT 20 – CURRENT

Casaleone and San Giovanni Lupatoto (VR)

Service as Scoutmaster in AGESCI

AGESCI is one of the Italian association for Scouting, officially recognised by WOSM. I became a boy scout in 2008 and starting from 2016 I've done several experience of volunteering in the association and outside (with kids and hospitalised patients). In October 2020 I've started the experience as scoutmaster for the wolf cubs (8-11 years old children).

APR 21 – FEB 22

Service for Settore Protezione Civile AGESCI

AGESCI collaborates with Protezione Civile Nazionale (National association for Civil Protection), in particular in 2021 the Veneto region activated us to support the population during the national vaccination campaign.

OTHER SKILLS

Organisation skills

I am able to coordinate complex projects, both from logistic and financial point of view, also with other people. Skill gained thanks to the role of representative of the students, at the activities organised in AGESCI and academic projects.

Soft skills

I have good analytical skills, communication, team work and leadership. Gained thanks to the role of representative of the students and director of the student newspaper, at the activities organised in AGESCI and academic projects and the role as GTA. I also enjoy working in multidisciplinary projects, in particular with people from different background.

SELECTED PROJECTS

- (Python) Watermark embedding for Multimedia Data Security
  `https://github.com/Luisa2111/Multimedia-Data-Security`
- (MAGMA) Photon-beetle implementation (one of the finalists for the *NIST call for lightweight cryptography*)
  https://gitfront.io/r/giacomoborin/j4T6yNGJjTH5/Photon-beetle-MAGMA/
- (MAGMA) Simple program for the decoding of cyclic codes with Groebner basis
  `https://giacomoborin.github.io/works/master/ACA-GB_decoding.mag`
- (SAGEMATH) Program for the calculations of Greither unit index for cyclotomic fields
  `https://giacomoborin.github.io/works/PEM/Greither_unit_index.html`
  (html output of the jupyter notebook)
- (MAGMA) Implementation of some algorithms for public key cryptography
  https://gitfront.io/r/giacomoborin/Y8yN1sMBBtNy/project2-MAGMA/
- (SAGEMATH) Implementation of Weil and Tate pairings
  `https://giacomoborin.github.io/works/ANT/Weil_and_Tate_Pairngs.html`
  (html output of the jupyter notebook)
- (LATEX): Custom beamer theme for *Dipartimento di Matematica dell'Università di Trento* (non official)
  `https://github.com/giacomoborin/Beamer-Theme`
- (PYTHON e SAGEMATH): Implementation of the Quadratic Sieve factorization algorithm