

Francesco Maccarini

Ph.D. Computer Science Student
M.Sc. Mathematical Engineering

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Research Interests:

Music Information Retrieval,
Artificial Intelligence,
Statistics & Machine Learning,
Mathematical Modelling,
Audio Signal Processing

CURRENT POSITION

Ph.D. Computer Science Student,

from 01 Nov 2021

Université de Lille, CRISTAL Lab, Algomus Team

Research topic: Modelling Symphonic Writing (Music and AI, Computational Musicology)

WORK EXPERIENCE

Research & Development Intern,

04 May 2020 – 30 Sept 2020

Procter & Gamble, Schwalbach am Taunus (Germany)

Internship project: "Statistical Modeling for Liners Consumers" (First half remotely, second half in office)

EDUCATION

M.Sc. Mathematical Engineering, track in Statistical Learning,

28 Sept 2018 – 7 Oct 2021

Politecnico di Milano

Graduated with 109/110

Full marks (30) in the courses: Audio Signals (cum Laude), Digital Signal Processing, Algorithms and Parallel Computing, Machine Learning

THESIS: *Statistical Analysis of Roots of Random Polynomials*

UNIVERSITY PROJECTS

Audio Signals: *Template Matching for Chord Recognition*

Digital Signal Processing: *Adaptive interference mitigation in audio signals and Estimation and equalization for periodic signals in MIMO systems*

Applied Statistics: *Make Election Polls Great Again* - Analysis of polls for Italian general elections

Bayesian Statistics: *Walmart Sales in Stormy weather* - Bayesian Forecasting for multiple time series

TUTORING ASSIGNMENTS

Lab assistant for C programming course, Linear Algebra tutor for students with special needs

STUDENT ASSOCIATIONS

Treasurer & Member of the board at "AIM – Mathematical Engineering Association"

B.Sc. Mathematical Engineering,

20 July 2015 – 25 Sept 2018

Politecnico di Milano

Graduated with 102/110

Full marks (30) in the courses: Computer Science A (cum Laude), Linear Algebra and Geometry (cum Laude), Statistics (cum Laude), Experimental Physics II (during Erasmus+ program)

FINAL WORK: Reading course *Google, Markov chains and Page Rank*

INTERNATIONAL EXPERIENCES

Erasmus+ grant, *Universidad Complutense de Madrid* (Sept 2017 – Jan 2018)

OTHER ACADEMIC ACHIEVEMENTS

Fellowship in excellence college *Camplus Città Studi*, Milano (Sept 2015 – Dec 2019)

High School Diploma,

Sept 2010 – July 2015

Liceo Scientifico Taramelli, Pavia

Final mark: 100/100

INTERNATIONAL EXPERIENCES

Exchange student @ *Essendon Kaylor College*, Melbourne, Australia (July 2013 – Nov 2013)

SKILLS

Languages: Italian (mother tongue), English (C1 IELTS 8.0), Spanish
Programming Languages: C/C++, MATLAB, R, Python, SQL
Technical Programs/Tools: JMP, BayesiaLab, Spark, GitHub, AMPL, JAGS/BUGS
General Use Software: Microsoft Office (Word, Excel, Power Point, Outlook), Photoshop, Prezi, LaTeX

Audio & Music Software: Ableton Live, Audacity, Serato, Virtual DJ, Finale
Musical Instruments: Violin, Piano, Keyboard
Music skills: Reading/Writing Sheet Music, Music Theory, Classical Music Analysis, Orchestral Performance

Soft Skills: Project Management, Problem Solving, Remote Working, Presentation Skills

OTHER COURSES AND CERTIFICATIONS

Online Courses on Coursera

- Blockchain and Cryptocurrency Explained, by *University of Michigan*, (April 2021)
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PUBLICATIONS

Contribution to:

- Deloitte Report 2020 "*Il mercato dell'arte e dei beni da collezione*" (*The market of art and collectible goods*)
I contributed with two pages where I present a statistical analysis of the performance of evening sales of Christie's and Sotheby's
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MUSIC BACKGROUND

Even though I am not a professional player, music has always had a very important role in my life:

Violin and classical training

I have started playing the violin in 2001, at the age of 5, with the Suzuki Method.

This music school has given me opportunities that otherwise would have not been possible for a kid of that age, such as playing in an orchestra with other children and taking part in the Suzuki Method World Convention in 2006.

Growing up I have also taken some official institutional exams at "*Conservatorio di Musica Franco Vittadini*" in Pavia:

- Pre-academic exams for Violin - Level 1, 2 and 3
- Music Theory
- Complementary Piano

I have been a member of the orchestra of the University of Pavia "*Camerata de' Bardi*".

I currently play with the chamber section of the Orchestre Universitaire de Lille (OUL).

Interest in digital music

During the years of university, I got interested also in electronic music and production techniques, so I have started self-teaching me the topic through books and online tutorials. I have also learned how to DJ, which I sometimes do at friends' parties.