

# Martina Lucà

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My journey started with the bachelor's degree in biotechnology and the master's degree in molecular and medical biotechnology. During these studies I discovered my passion for bioinformatics applied to genomics. My goal is to deepen my knowledge in this field as much as possible and to blend my passion for biology with the one for computer science.

## EDUCATION

- Oct 2021 – Mar 2024 **Master's Degree**  
**Molecular and Medical Biotechnology** | **University of Verona**  
Thesis: Parameters for Prefix-Free Parsing: Analysis and Experimentation  
Supervisors: Zs. Lipták, F. Masillo  
Final Mark: 110/110L
- Jan 2023 – Apr 2023 **Erasmus+ Blended Intensive Program (3CFU)** | **University of Granada**  
The program blends remote activity with a short mobility (16/03/2023 - 22/04/2023) at the University of Granada. Three Universities took part in the program: the University of Verona (Italy), the University of Granada (Spain), and BOKU University (Vienna, Austria). The students were divided into international groups and presented a review during the workshop in Granada.  
The topic of my group was: "Remediation of heavy metals: traditional technologies, bioremediation and new perspectives".
- Oct 2017 – Mar 2021 **Bachelor Degree**  
**Biotechnology** | **University of Insubria**  
Thesis: Bioarcheological analysis of the osteological finds from the crypt of the Church of Santa Maria Maggiore in Vercelli  
Supervisor: M. Licata  
Final Mark: 103/110
- Sep 2012 – Jul 2017 **Scientific High School** | **Liceo Paolo Giovio di Como**  
Project: Conway's Game of Life. Essay and recreation of the cellular automaton using a led matrix and an Arduino board.

## RESEARCH EXPERIENCE

- Nov 2023 – Current **Scholarship** | **Applied Research Center ARC-NET, Verona**  
Development, maintenance and update of a pipeline for the analysis of genomic panels.  
Python / Snakemake / R / Bash
- Aug 2023 – Mar 2024 **Thesis Student** | **University of Verona**  
Study of the Prefix-Free Parsing Algorithm. In particular, I focused on the evaluation of the importance of the choice of parameters (modulo  $m$  and window size  $w$ ) and the impact they have on the dimension of the final Dictionary and Parse. To do so I used as datasets a series of genomics libraries, both real and artificially created in way that allowed me to control the within sequence similarity of the collection and to evaluate its impact on the dimension of Dictionary and Parse.  
C++ / Python / LaTeX

Jul 2023 – Aug 2023	<b>Intern</b>   <b>University of Verona</b> The objective of the internship was to deepen the knowledge about text indexes and to improve programming abilities. In particular, I focused on the optimization of the Binary Search phase (using LCP and RMQs) in the context of a larger algorithm for the calculation of Matching Statistics. The results were submitted at an international conference. C++ / Python
Dec 2020 – Mar 2021	<b>Thesis Student</b>   <b>University of Insubria</b> Analysis of the osteological finds recovered in the crypt of the Church of Santa Maria Maggiore in Vercelli with the objective of obtaining as much information as possible regarding the population found e of analyzing what can be found in a similar archeological context. To reach such objectives, the biological profile of each find was reconstructed; also the events, both of pathological and taphonomic nature, that led to the current state of conservation of each find were reconstructed. Excel / LaTeX
Jun 2016	<b>Intern</b>   <b>Polytechnic University of Milan</b> Internship focused on providing the basics of Python programming of the use of Arduino. Python / C++ / Arduino

## WORK EXPERIENCE

2022 – 2023	<b>Student's Tutor</b>   <b>University of Verona</b> Tutor for students with learning disabilities and administrative office work at the Inclusion and Accessibility Office of the University. Excel
2019 – 2021	<b>Student's Tutor</b>   <b>University of Insubria</b> Tutor for students with learning disabilities, administrative office work and student orientation. Excel / Esse3

## SKILLS

### Informatic Skills:

- OS (Windows, Mac, Linux)
- Common Programs (Office suite)
- Programming
  - C++
  - Python
  - Git
  - html/css
  - Markup languages (LaTeX, markdown)

### Linguistic Skills:

- English: C1

## PUBLICATIONS

Zs. Lipták, M. Lucà, F. Masillo, S. Puglisi	<b>A simple heuristic speedup for matching statistics computation</b> State: submitted at an international conference
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## **VOLUNTEERING**

Dec 2022 – Attuale

### **Volunteer**

**| Italian Red Cross**

I volunteer mainly in the societal field (organizing the warehouse, distribution of food, food collection, grocery shopping service for the elders, ...). I'm currently enrolled in the course for the OPEM title (Emergency Operator).