

# ALESSANDRO LUSSANA

BIOINFORMATICIAN; GRADUATE M.Sc. BIOINFORMATICS WITH HONOURS

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## ABOUT ME

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**Technical Skills** Python, R, Unix/Linux, Perl, Awk, Sed, Snakemake, Docker, Slurm, HTCondor, Git

**Languages** Italian (native), English (professional proficiency, C1 CEFR level)

**Art Technology** Inkscape, GIMP

**Interests** DIY Robotics, Design, Electric Guitar, Judo

## WORK EXPERIENCE

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### IRCCS San Raffaele Scientific Institute

Bioinformatician

Milan, Italy (Oct 2020 - Present)

- Interacted with experimental researchers to investigate viral-induced immune responses in Prof. Matteo Iannacone's Lab
- Helped formulating informative and statistically-sound experimental designs
- Designed computational pipelines to handle and analyze bulk and single-cell RNA-seq data with cutting-edge computational methods at the Centre for Omics Sciences (COSR)

### Tampere University

Research Assistant

Tampere, Finland (May 2020 - Sep 2020)

- Collaborated with the Computational Biology Group under the lead of Prof. Matti Nykter
- Helped in the computational analysis of chromatin accessibility of clinical prostate cancer samples

### Tampere University

Visiting Student

Tampere, Finland (Feb 2020 - Apr 2020)

- Developed thesis project titled "Deep-learning The Transcription Factors' Syntax From Chromatin Accessibility Profiles" under the supervision of Prof. Matti Nykter
- Set up a deep-learning-based project on a large HPC cluster, handling Chip-seq and ATAC-seq data
- Was asked to present my thesis work in a lab meeting, and was offered to be a grant holder for the faculty

### University Of Turin

Student Trainee

Turin, Italy (Apr 2017 - Sep 2018)

- Analyzed human genetic variation and its effect on gene expression, using GEUVADIS and GTEx datasets
- Was invited to attend the annual Bioinformatics Italian Society (BITS) meeting by my supervisor, Prof. Paolo Provero
- Developed AffiXcan, an R package published on Bioconductor, to build statistical models of Genetically Regulated Expression (GREX) from functional scores computed on promoter sequences

## EDUCATION

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### University Of Bologna

Bologna, Italy (Oct 2018 - Sep 2020)

- International M. Sc. In Bioinformatics
- Weighted Average: 29.09/30.00
- Final graduation mark: 110/110 cum laude
- Developed thesis work as an Erasmus student at Tampere University, Finland
- Both theoretical and practical training concerning algorithms, data structures, programming, proteomics, genomics, DNA and RNA dynamics, linear algebra, combinatorics and probability, machine learning, deep-learning, systems biology, databases, HPC technologies, and phylogenetics

### University Of Turin

Turin, Italy (Oct 2015 - Jul 2018)

- B. Sc. In Biotechnology
- Weighted Average: 28.3/30.00
- Final graduation mark: 110/110 cum laude
- Strong theoretical foundations in cell biology, molecular biology, human genetics, developmental biology, biostatistics, pharmacology, biochemistry, analytical chemistry, organic chemistry, plant biology, plant genetics, and physics

### Research Project

(2020)

- "Chromatin accessibility analysis uncovers regulatory element landscape in prostate cancer progression" DOI: <https://doi.org/10.1101/2020.09.08.287268>
- Was invited to collaborate to the in-depth computational analysis of ATAC-seq data from clinical samples of prostate cancer at Tampere University

### Information Technology

(2020)

- Self-taught fundamentals of networking
- Set up a personal NGINX web server running in a Docker container allowing me to access all my files from anywhere through the Internet: <https://github.com/alussana/WebXiv>

### Bioconductor Package

(2018)

- "A functional approach to impute Genetically Regulated Expression" DOI: [10.18129/B9.bioc.AffiXcan](https://doi.org/10.18129/B9.bioc.AffiXcan)
- Prof. Paolo Provero and collaborators are currently using AffiXcan, among other methods, to perform TWAS in conditions where the gene expression cannot be directly quantified (e.g. human brain, ancient genomes)
- The R package was submitted to Bioconductor, reviewed and accepted by the Bioconductor team

### Robotics

(2015)

- Self-taught electronic circuit prototyping with Arduino microcontrollers
- Built and programmed a small robot capable to autonomously avoid obstacles for an extracurricular school exhibition
- Built and programmed wearable devices with LCD displays for cosplayers