Océane Cassan | PhD student in Bioinformatics and Statistics

- Status: PhD student in Bioinformatics and Statistics applied to plant biology under climate change, BPMP team, Supagro, Montpellier
- Fields: Genomics, Epigenomics, Gene Regulatory Networks, Statistics, Machine Learning, Computational Biology.

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Education

2019 - 2022 **PhD project: Statistical inference of the gene regulatory network in A. thaliana under climate change** — CNRS - BPMP & IMAG research units

- A majority of cultivated plants exposed to elevated CO2 undergo a depletion of their nutritionnal content. My project is to integrate dynamic transcriptomes and epigenomes and from A. thaliana plants to understand how elevated CO2 is linked to mineral nutrition in plants, using statistical learning and predictive models.
- **Supervisors** : Dr Antoine Martin and Dr Sophie Lebre.

2018 - 2019 **MASTER degree in Artificial Intelligence** — University of Lyon 1

- Courses covering machine learning, deep learning, multi-agents systems, reinforcement learning, bio-inspred intelligence, data visualization, AI and cognition.
- Double degree in partnership with the INSA (National Institute of Applied Sciences, Lyon).

2014 - 2019 **Engineering degree in Bioinformatics and Modelling** — INSA, Lyon

- 2016 - 2019 : Informatics, statistics, algebra, differential equations for modelling and analysis of biological mecanisms.
- 2014 - 2016 : 2-years preparatory classes in european section : general scientifc and engineering training.

2014 **Baccalaureate certifcate** — Ain, France

- Engineering Sciences diploma with high honours. Specialization : Mathematics

Work experience

February-July 2019 **Master internship : Machine learning models to predict gene regulation in different cell types** — IGMM (CNRS)-LIRMM, Montpellier

- Classification of enhancer-gene interactions in the context of regulation via chromatin folding.
- Comparative study of penalized logistic regression, ensemble methods (Random Forest, Boosting), and deep learning models for this task. Languages : R, Python, bash

May-July 2018 **Internship : tracking algorithm for 3D biological objects** Nanolive, Lausanne

- Creation of image analysis tools for quantitative biology, inside the Nanolive R&D team. Segmentation of objects and tracking methods for biological objects in label-free microscopy images. Programming langage : Python.

Juillet 2017 **Research internship in bioinformatics** LIRMM, Montpellier

- Enhancement of a supervised classifcation method to predict transcription factors binding sites. Involved in a scientifc paper in BMC Genomics (Link here). Programming langage : R.

2016-2017 **Project : model of cancerous cell mutations** NovaDiscovery, Lyon

- Realized a project in partnership with NovaDiscovery, a consulting Start up in Bioinformatic. Implementation of an object oriented model for mutation dynamics in carcinogenesis.

2016-2017 **Teaching experiences** INSA, Lyon

- Tutoring a group of four students of INSA preparatory classes in Mathematics. Particular lessons to high school students in mathematics, physics, chemistry

July 2015 **Working internship abroad** Sercotel Espana

- Waitress in a Catalan hotel.

Skills

Informatics

- Programming langages : R (package development, Rmarkdown, R-Shiny), Python, Latex, Java, bash, C++, SQL
- Logiciels : Git, Microsoft Office, Jade, Knime

Interpersonal skills

- Spoken langages : fluent english (TOEIC) and Spanish (DELE B2)
- Ability to listen, work in group, adapt, work autonomously
- First aid diploma PSC1, driving licence B et A2
- Interests : sports, drawing

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