



# Simon CROUZET

BIOINFORMATICIAN & DATA SCIENTIST



## Skills

### Programming:

#### Languages:

Main: Julia, Python, Java

Others: C, C++, R, SQL, Matlab, PHP, HTML/CSS, Prolog, Mathematica

#### Fields of Interest:

Machine Learning, Deep Learning, Computational Biology, Genomics, Artificial Intelligence, Computational Medicine, Modelling of Dynamic Systems, Problem Solving

#### OS:

Windows, GNU/Linux

#### Tools:

Git, PyTorch, Jupyter Notebook, LaTeX, Unit Testing, Gurobi, UML, POO, PowerBI, LSF Cluster

#### Transversal:

Project Management  
Microsoft Office



## Languages

French: Native

English: Fluent  
TOEFL iBT: 99/120



## Personality

Some words to describe me:

Involved, serious, versatile, curious, with a strong critical mind. Perfectionist, pedagogue, rigorous and perseverant.

Highly interested in sciences since childhood, nurtured by self motivation via documentaries, lectures, scientific articles, online courses, newsgroups, popular science movies and online searches.

**Hobbies:** Photography, Travels, Sport (Cycling, Hiking, Skiing, Climbing, Badminton), DJing, Cooking, Reading, Internet & Video Games...



## Contact

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## Qualifications

2021 - 2022  
(Ongoing)

**Ecole Normale Supérieure (part of Paris Science et Lettres) – Paris (France)**  
**M.Sc. in Systems biology, Genomics and Bioinformatics**

2020 – 2021

**Sorbonne University - Paris (France)**  
**M.Sc. in Bioinformatics and Modelling - with High Honours**

2019

**Linnaeus University - Växjö (Sweden)**  
**Semester Abroad during B.Sc. in Computer Science**  
Semester 5 of my Bachelor of Computer Science through the mobility program ISEP Study Abroad

2017 – 2020

**Aix-Marseille University – Marseille Luminy (France)**  
**B.Sc. in Computer Sciences - with First Class Honours**

2016 – 2017

Interruption of studies due to health issues

2013 – 2016

**Grenoble Alpes University – Saint-Martin-d'Hères (France)**  
**B.Sc. in Chemistry**

2013

**Grenoble Alpes University – Saint-Martin-d'Hères (France)**  
**DAEU-B (Diplôme d'Accès aux Études Universitaires - Scientifique) - with First Class Honours**



## Work experiences

Summer 2021  
(Ongoing)

**Research Assistant at Wellcome Sanger Institute**  
**University of Cambridge (England)**

Structural variation of genomes and pangenomics exploration of *Anopheles Funestus* (mosquito, major vector of malaria)

Spring and  
Summer 2020

**Research Intern at the Institute of Biodiversity, Animal Health and Comparative Medicine**  
**University of Glasgow (Scotland)**

Development and improvement of a viral host prediction model in Julia through genomic feature, phylogenetic neighbourhoods (using BLAST search) and protein characteristics.

First version available on <https://bioinformatics.cvr.ac.uk/software/viral-host-predictor/>.

Second version developed using XGBoost via MLJ.jl over an extended virus dataset.

Summer 2018

**Research Intern at Laboratoire d'Informatique & Systèmes**  
**Aix-Marseille University - Campus of Marseille Luminy (France)**

Development in C of an automaton network solver using data-flow algorithms to model genetic regulatory networks as the control of floral morphogenesis in *Arabidopsis Thaliana*.

January 2016

**Research Intern at Laboratoire d'Électrochimie et de Physicochimie des Matériaux et des Interfaces**  
**Grenoble Alpes University – Campus of Saint-Martin d'Hères (France)**

Synthesis of several materials for battery cells. Interpretation of analyses and material characterization. Discussion of perspectives and further research.

June 2012

**Junior Intern at STMicroelectronics**  
**Crolles (France)**



## Publications & Projects

### Publications & Conferences:

- Simon J. Crouzet, Matthew Arnold, Nardus Mollentze, Richard J. Orton, Daniel G. Streicker, Simon A. Babayan, *High-performance and modular identification of virus hosts of origin utilising machine learning of genomic signatures in Julia* (to be released)

- Simon J. Crouzet, Hannah-Marie Troppens, Yasser Mohseni Behbahani, Élodie Laine, Alessandra Carbone, *Evaluation of Docking Conformations based on Graph Representation Learning* (to be released)

### Student projects:

- Presentation of a genome analysis of SARS-Cov2 (origins, homologous sequences, ORFs, protein analysis, structure, ...).

- Image classifier (preparing dataset, comparing algorithms and optimising predicted results) in Python.

- Problem solver (graph search implemented with several algorithms and heuristics) in Python.

### Personal projects:

- Coding a bioinformatics Julia package which provide tools to compute ORFs within a DNA sequence.



## Volunteering

- International Ecovolunteering during the month of June 2019 with the NGO *Archelon*, on a sea turtle conservation project in Kyparissia Bay (Greece).

- Volunteering in several student associations, including *Asso'M* (event-driven student association) as well as *FAMI* (representation student association), *TACT* (large-scale sport event, as a Financial Officer), *BDE Luminy* (student association, as a Treasurer) or *Multicultural Växjö* (charitable student association).

- Representative student at CVEC (Contribution à la Vie Étudiante du Campus) and at Department "Informatique et Interaction" council of Aix-Marseille University.

- Ambassador for *COP2 Étudiante*, a national summit to negotiate a global agreement on ecological and social transition within French higher education.