

## **PhD and Postdoc positions**

### Project Summary

Genomic information from Coronaviruses, like SARS-CoV-2, can be used to track the genetic evolution of the virus and study the correlation of new variants with the emergence of epidemiological waves. In Ref (<https://doi.org/10.1038/s41598-022-12442-8>), we developed a simple Machine Learning algorithm to define emerging variants in terms of clusters, based only on the spike protein information.

### Profile for a PhD student / Postdoc position

We are seeking highly motivated candidates (1 PhD student and 1 Postdoc) to develop this project based at Centre International de Recherche en Infectiologie (CIRI)-Université Claude Bernard Lyon 1 (UCBL) ([ciri.ens-lyon.fr](http://ciri.ens-lyon.fr)) and Institut de Physique des deux Infinis, Lyon (IP2I) ([www.ip2i.in2p3.fr](http://www.ip2i.in2p3.fr)). The project will be developed in a highly multi-disciplinary environment, spanning from virology and epidemiology, to experimental and theoretical physics. The candidate(s) is/are expected to further develop the algorithm in various directions. The current code will be automatized for studying the available sequences in various geographical units. The algorithm will be further developed by introducing more effective neural network architectures. Furthermore, the algorithm will be tested on other viral disease, like Influenza, and adapted to the new structural formation of the virus.

The successful candidate(s) should have experience in at least one of the following fields: theoretical physics, computer science, quantitative biology, epidemiology, applied mathematics. Experience in data analysis is required, while previous experience with Machine Learning is welcome.

PhD candidate: funding will be granted for 3 years via the Ecole Doctorale E2M2 of the University of Lyon, where the selected candidate must pass an entry examination.

Postdoc position: funding is available for 1 year initially and the successful candidate will be encouraged and supported to apply for external funding to support the project.

Interested candidates please send a CV and motivation letter to:

Marta Nunes <[marta.nunes@univ-lyon1.fr](mailto:marta.nunes@univ-lyon1.fr)>

or

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