Workshop Title: COMOKIT- A Modeling Kit to Understand, Analyze and Compare the impacts of mitigation policies against the COVID-19 pandemic at the Scale of City

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Duration: 2 hours

Workshop Synopsis

Since its emergence in China, the COVID-19 pandemic has spread rapidly around the world. Faced with this unknown disease, public health authorities were forced to experiment, in a short period of time, with various combinations of interventions at different scales. However, as the pandemic progresses, there is an urgent need for tools and methodologies to quickly analyse the effectiveness of responses against COVID-19 in different communities and contexts. In this perspective, computer modelling appears to be an invaluable lever as it allows for the in silico exploration of a range of intervention strategies prior to the potential field implementation phase. More specifically, we argue that, in order to take into account important dimensions of policy actions, such as the heterogeneity of the individual response or the spatial aspect of containment strategies, the branch of computer modelling known as agent-based modelling is of immense interest. I will present in this workshop an agent-based modelling framework called COVID-19 Modelling Kit (COMOKIT), designed to be generic, scalable and thus portable in a variety of social and geographical contexts. COMOKIT combines models of person-to-person and environmental transmission, a model of individual epidemiological status evolution, an agenda based one-hour time step model of human mobility, and an intervention model. It is designed to be modular and flexible enough to allow modellers and users to represent different strategies and study their impacts in multiple social, epidemiological or economic scenarios. Several large-scale experiments will be presenting, illustrating the potentialities of COMOKIT in terms of analysis and comparison of the impacts of public health policies in a realistic case study.

Objectives:

- To provide an introduction to agent-based modelling of spatial phenomena and in particular of disease (COVID19) spread.
- To present the COMOKIT model.
- To present how to apply the model on new case studies.

Who should attend:

This workshop is suitable for those interested in modelling and simulation and in particular spatially explicit agent-based modelling and its application to disease (COVID-19) spread and mitigation policy implementation.

Requirements:

Attendees interested in looking at the data and models can download the COMOKIT model alone (to be used with a pre-installed compatible GAMA release) or in an all-in-one bundle (https://github.com/COMOKIT/COMOKIT-Model/releases/tag/v1.0.1).