Master Internship proposal

Title : **Opinion formation and dissemination, a dynamical system of interacting agents**

The way in which opinions form and disseminate in a social group, a traditional research topic in Social and Political sciences has also attracted in the last decades the interest of physicist and matematicians who started studying the problem from the perspective of a system of interacting agents.
The recent development of social networks and the tremendous increase in computer power have also brought computer scientists to this field, and different techniques devoted to make sense out of this huge amount of data have been proposed, leading to the so called « Computational Social Sciences ».
Precisely, during this internship we address the problem of the dynamics of the social attention on a particular topic. In 1972, Downs introduced the concept of *« Issue-Attention Cycle »* to describe the life cycle of a new topic entering the social discussion : the attention that the pubic pays to it undergoes a cycle that goes from acknowledgment, to euphoria and finally decreases until the topic is replaced by another one.
Since then, several works have tried to identify and measure it in different social, cultural and political contexts, most of them via a statistical treatment of media coverage limited to some particular subject like climate change, health issues or security issues. [2-4]

The objective of this project is to study this problem by modeling the society as a dynamical system of interacting agents, whose interactions are given by Downs' hypothesis along with well known traits of social behaviour like homophily, social influence and social cost. We aim at building a model based in microscopic interactions among the agents that reproduces the patterns described in the literature.

This internship is proposed in the framework of the OpLaDyn *« Understanding Opinion and Language Dynamics using massive data »* international and interdisciplinary team situated at the crossroads of several disciplinary fields, this particularity will provide the student with a solid experience of working in an pluri-disciplinary environment. In particular the student will be in contact with other young researchers (master students and Post-Doc) working on other aspects of the same project).
She/he will have access to all the benefits of a regular member of the OpLaDyn team, and of the laboratory LPTM. Moreover, Cergy-Pontoise University is a partner of the Institute of Complex Systems of Paris-Ile de France (ISCpif) which opens to the candidate the access to its services.

Working environment : Laboratoire de Physique Théorique et Modélisation LPTM UMR8089 CNRS-Université de Cergy-Pontoise. 2 Av Adolphe Chauvin 95302

Profile of the candidate : this internship is open to students of master in Physics, Mathematics and Computer sience, interested in interdisciplinary applications. Previous knowledge on Dynamical Systems, complex networks, would be appreciated. Programmation skills are requierd.

Duration : February-June 2019 (5 months) (possibility of extension to a PhD research subject) .
Allowance : french reglamentary internship allowance ~ 550€/month

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