Post-doctoral fellowship on diversity indicators in recommendation systems

Description

This post-doctoral offer is part of Algodiv, a multidisciplinary project granted by the French National Research Agency (ANR), and gathering computer scientists and sociologists. The purpose of Algodiv is to define and measure the notion of diversity in the information filtering and ranking algorithms, which are used on the web. Indeed, these algorithms aim at answering as efficiently as possible the immediate needs of the users. However, their potential collateral effects have been a subject of debate for a long time, as proven by the wide media coverage of the so-called filter bubble effect [Par11] during the last few months. This expression designates the possible tendency of an individual to be confined to a limited range of options, determined by their former choices. Considering platforms such as Facebook, or search engine implementing some sort of personalized search, this may be true or not. Information seclusion might be the mere consequence of homophily, which has been measured in a wide range of contexts ([MSLC01, AG05]). Now giving more weight to the diversity of the information proposed is a major challenge for the development of information filtering algorithms, which is taken very seriously by platform designers ([BMA15]).

The post-doctoral fellow is expected to work on the notion of diversity in the specific context of recommendation systems. On the one hand, he/she will define this concept on the basis of the diversity measures, as implemented — explicitly or not — in the recommendation algorithms of the literature [ZMKL05, ZKL+10, VC11]. Moreover, he/she will address this question in a broader way by defining the notion of diversity not only in a strict algorithmic sense, which is related to its applications in recommender systems, but also in terms of its consequences in regards to the exposure of the users to cultural plurality. Then, he/she will design relevant measurements, which could account for the characteristics discovered.

Another aspect of the work is evaluating the effect of classical algorithms on the notion of diversity — according to the various meanings of the term — and to measure on users navigation data how the algorithms actually affect the navigation choices over time. Original datasets coming from two online news websites might be used, with possible interactions with the editorial teams. The post-doctoral fellow will also have the liberty to develop other aspects of this issue, such as proposing mechanisms, which could balance the negative effects observed, as well as homophily effects.

Skills required

- experience in data mining
- experience in complex networks analysis is desirable but not mandatory
- interest for interdisciplinary research, open-mindedness to new methodologies
Location: LIP6 (University Pierre and Marie Curie), 4 Place Jussieu, Paris, France.

ANR Algodiv Project: http://algodiv.huma-num.fr/

Duration: 12 months, possibly renewable.

Starting period: Fall 2017.

Estimated salary: 2100 euros per month (after taxes).

Contacts:
Christophe Prieur (Télécom Paris-Tech): christophe.prieur@telecom-paristech.fr
Lionel Tabourier (LIP6 – CNRS / UPMC): lionel.tabourier@lip6.fr

Références


