

User-centric applications (social networks, crowdsourcing): Adaptive learning for search and recommendations

In the context of the ANR project ALICIA, this internship will study and implement techniques for improving the way information needs are answered in user centric applications (in social media and crowdsourcing). For example, when searching for relevant tweets in Twitter, when searching for new friends in Facebook, or when recommending products in Amazon, the way the underlying system will compute relevance of information with respect to an individual's request may depend on factors such as the social links and interactions, whom is that individual influenced by, a personal profile, etc. What role each of the various factors of this kind should play in the decision process (e.g., if the recommended product is ultimately bought or not), is something that may vary from one user to another, from one context to another, and so forth. Therefore, automated learning techniques, which continuously monitor and adapt to user responses may support and significantly improve the retrieval and recommendation algorithms, in order to make the most of each application's specificities.

The internship will be supervised by Bogdan Cautis (Professor, Univ. Paris Sud) and Olivier Cappé (Professor, Telecom ParisTech).

This topic may be continued with a PhD thesis.

Some relevant references for this topic are:

- *Network-aware Search in Social Tagging Applications: Instance Optimality versus Efficiency.* with Silviu Maniu, ACM International Conference on Information and Knowledge Management (CIKM) 2013, San Francisco, USA.
- *Taagle: efficient, personalized search in collaborative tagging networks.* with Silviu Maniu, The ACM SIGMOD International Conference on Management of Data (SIGMOD), Scottsdale, USA, 2012.
- *py/maBandits: matlab and python packages for multi-armed bandits.* O. Cappé, A. Garivier, and E. Kaufmann. June 2012.
- *On Bayesian upper confidence bounds for bandit problems.* E. Kaufmann, O. Cappé, and A. Garivier. In Proc. AISTATS, JMLR W&CP, volume 22, 2012

Internship timeframe: 5+ months, starting March 2014

Level: Master (M2)

Salary: standard