

Multidimensional approach for context-aware recommender systems.

Master Internship proposal

Paris-Dauphine University, France

<https://dauphine.psl.eu/>

Computer Science Lab. (Laboratoire d'Analyse et de Modélisation de Systèmes d'Aide à la Décision – LAMSADE - UMR CNRS 7243)

<https://www.lamsade.dauphine.fr/>

Expected background: the candidate, involved in a computer science cursus (last year of Master studies), should have a background in at least one (or more) of the following domains: data mining, knowledge discovery/management, OLAP, Business Intelligence, Data Science, machine learning. About the technical skills: java or python.

Funding: 600€/month

Duration: from March to July (can be adjusted according to your cursus requirements)

After the internship: the candidate can apply to a PhD funding on the same domain.

Abstract:

Data exploration is a process of searching relevant information, within a set of data, to detect hidden correlations or new information. However, users have to deal with a growing volume of information due to the increased computing and storage capacity. So, it is increasingly difficult to know exactly what information to look for and where to look for it. Computer technologies facilitating search and retrieval of relevant information are needed. One of them is the recommendation that will guide the user in his/her exploration of the amount of available information by searching for information that seems relevant. This is a particular form of information filtering to present information (movies, music, books, news, images, web pages, etc.) of interest to users. Typically, the recommendation process seeks to predict the score the user would give to each item and recommends the items with the highest scores. Despite good performance of recommender systems, recommendations are sometimes not relevant enough. Integrating contextual data/information is interesting. Moreover, the context is omnipresent and multidimensional. Consequently, recommender systems move from a two-dimensional score function (Users x Items -> Ratings) to a multidimensional score function (Users x Items x Context -> Ratings). This multidimensional modelling should improve the quality of recommendation process, but unfortunately, it is rare or even impossible to have ratings for all possible cases of context. This generates data sparsity which is an important challenge in recommender system field. Thus, how to limit this data sparsity?

The internship will be centered on a multidimensional approach. A state of the art on context-aware recommender systems (CARSs) and context (multidimensional) modeling (among others) will be carried out. Then, some ideas will be proposed around multidimensional modeling of the context for its integration into a CARS. An implementation and/or a prototype could be developed.

Candidature/contact: please send to Elsa NEGRE (elsa.negre@lamsade.dauphine.fr) your CV, a letter explaining your motivations, references from previous supervisors, your records for the last 2 years at least. A first selection of candidates will be based on these documents, then we will conduct interviews.

Application deadline: February 21, 2020