

HYBRID RECOMMENDATION SYSTEM TO SUPPORT THE CREATION OF COLLABORATIVE LEARNING GROUPS



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Motivation of the work

- In many academic settings (physical or virtual) there is a need to form suitable collaborative learning groups (CLG) among students, driven by information about their profiles, as well as the characteristics of the activity to be developed.
- Researchers have highlighted the importance of identifying the attributes that allow organizing efficient CLGs guaranteeing the best performance of the student population.
- Organizing groups at random or by students' self-selection hardly ever results in balanced groups and best collective performance.
- Student and teacher profiles have to be developed that cover diverse relevant attributes, and new procedures are needed to handle the rich information so as to generate the best CLGs.



Thesis Objectives

General goal:

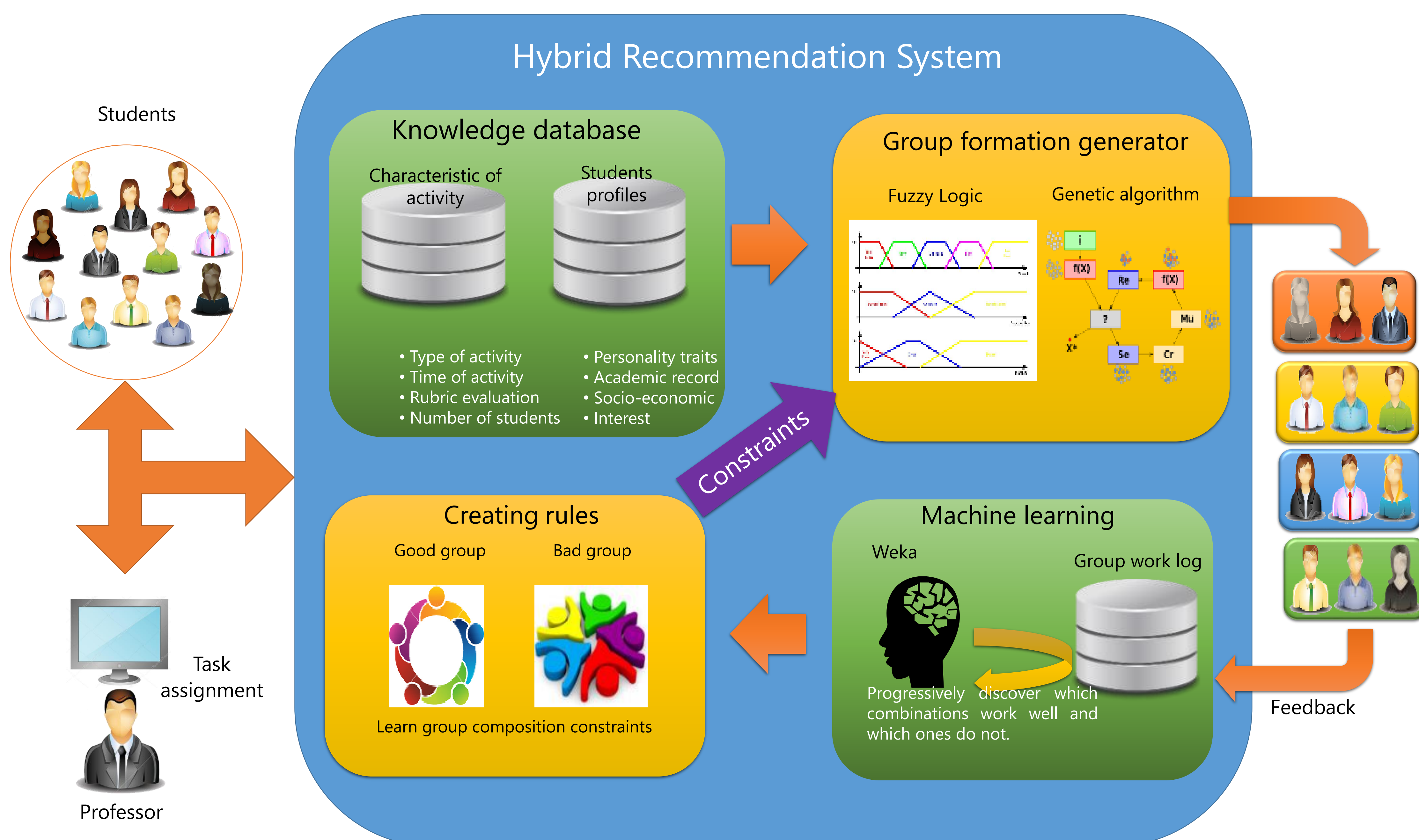
- Design, implement and validate a versatile recommender system for CLG formation, managing rich user profiles and activity descriptions.

Specific goals:

- Create a repository of templates that specify the characteristics of the collaborative activities for subject, duration, level of difficulty, number of students, rubric of evaluation, among others.
- Develop and test affinity metrics to match various types of user profiles, containing psycho-demographic data, personality traits, academic record, socio-economic data, etc.
- Develop and test strategies for group formation using fuzzy logic or genetic algorithms based on student profiles and activity.
- Design monitoring and feedback mechanisms to train the group formation algorithms.

Research Plan

- ✓ **(2014-2015)** Familiarization with the state-of-the-art in areas of semantic web, recommender systems, profile matching and sporadic social networks.
- ✓ **(2015-2016)** First steps in the definition of affinity metrics and group formation strategies. Design of a demonstrator for CLG formation in online learning portals. Participation in the doctoral consortium of ICALT 2016 and HCI International 2016.
- ✓ **(2016-2017)** Refinement of proposals. Implementation and early experimentation in online language learning. Development and implementation of a second demonstrator for group experiences in museums.
- (2017-2018)** Completion of proposals. Development and evaluation of a third demonstrator for crowdsourcing applications. Submission of a conference paper and a journal paper.
- (2018-2019)** Documentation and thesis presentation.



Next Year Planning

September–December 2017: Test the SGOLL demonstrator with real users in the specific areas of specific knowledge of English and Mathematics. Preparation of reports.

January–March 2018: Implementation and testing of second demonstrator in the context of the H2020 project CrossCult.

April–July 2018: Development and evaluation of the demonstrator for crowdsourced applications.

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