TV watching recommendations for groups of users

TV watching used to be simple in the 20th century. You would check a single page of your printed program guide or you could just flip through the few available TV channels. Things are getting very different now in the 21st century. Not only has the number of available channels gone up to many hundreds thanks to digital TV. Also the number of content sources has largely increased: catch-up TV, video on demand, live and on-demand content via the internet and via hybrid broadcast internet systems.

Search engines and content recommendation engines can help users to make their TV watching selection, making sure that they know what things are on that are interesting to them and to find content that they otherwise might not have found. Content recommendation engines require some form of user input so that the recommendation can be tailored to the persons watching. Examples of such input are user ratings (e.g. TVgids.nl, based on TNO’s recommendation technology) and watching behavior (e.g. YouTube).

Current recommendation engines have the limitation that they personalize their recommendations for single users. That would be fine for single users consuming the content through their laptop, PC or tablet. However, studies show that still the majority of TV content is watched together with other users, like family members or friends. So how to tailor recommendations to a group of users?

The goal of this project is to build a TV watching recommendation engine for groups of users. TNO’s recommendation engine for TVgids.nl can be used as a basis. That engine makes TV watching recommendations for single users. Its input is user profiles (scoring lists). Its output is a list of recommended TV programs. So the assignment is to make it usable for groups of users.

The work has three tasks.
1) “Input merge”: Build a solution to merge user profiles at the input of the recommendation engine.
2) “Output merge”: Build a solution to merge recommendation lists at the output of the recommendation engine.
3) “User interface and integration”: Build a user interface that enables a group of users to request a group content recommendation, and integrate it with the results of task 1) and 2).
The result of this project is a **working prototype** that can be demonstrated to
- project members of the European HBB-Next project
- management of TNO
- customers of TNO, like TVgids.nl

The current assignment is written for a group of 4 students. Smaller groups may be facilitated, but a group size of 4 students is preferred.

**Supervision:**
The students will be supervised by
- Msc. Joost de Wit, designer and maker of TNO’s recommendation engine
- Dr. ir. Oskar van Deventer, responsible for the project

The work and supervision will take place in the context of the European FP7 project HBB-Next.

**Housing:**
The students will be housed together in TNO’s Media Services Lab, which is located at Brassersplein 2 in Delft, and where also the supervisors reside.

Students are required to hand in a Certificate of Good Conduct (Dutch: VOG, Verklaring Ontrent Gedrag), which is a TNO requirement to work at TNO premises. Note that obtaining such certificate may take some time, especially for non Dutch and non-European students.

**Contact and selection procedure:**
Would you and your group work on this assignment, please contact:

Joost de Wit  
Tel: 088-8667447  
E-mail: joost.dewit@tno.nl

The TNO selection procedure consists of a group intake. Based on the intake, the group will be given a ‘go’ or a ‘no go’ to start working on the assignment.

---

1 This project forms part of the European HBB-Next project, which TNO carries out with a set of European partners. The goal of that project is to develop next-generation hybrid broadcast broadband. Content recommendations for groups of users are one of the challenges of that project.