RECSYS 2017 – WORKSHOP PROPOSAL

Workshop Title

KidRec – Children & Recommender Systems

Workshop Description

Rationale. Recommender systems (RS) have been studied for the past few decades. Recommendation strategies detailed in the literature [1, 3 6] — for the most part — have been developed to serve traditional users: adult individuals who will often offer explicit feedback, write reviews, or purchase items themselves. Children's access to technology has dramatically increased in the past fifteen years. While RS for adults have been studied for several years, RS for children are only recently beginning to be studied and are primarily limited to recommenders in education-related environments [7, 8]. When focused on this particular audience, the role of a recommendation system needs to be reformulated, as it is not sufficient for recommenders to identify items that match users' preferences and interests. Instead, it is imperative that they also explicitly consider their needs from multiple perspectives: educational, developmental, and engagement, to name a few. Considering these particular needs opens a rich set of questions to answer: What are the benefits of child-specific recommendations? What role does personal history, age, developmental stage, or even curricular standards have in RS for children? What are the goals of RS for children: persuade, educate, guide, and support their well-being, or something else entirely? What are the ethical or privacy challenges associated with this type of recommendation? What are the domains in which recommendations make sense for children? Are they the same as for adults?; How should we model personalization given that traditional mechanisms of explicit feedback, writing reviews, and purchasing items (directly) do not match this particular population whose literacy levels are growing and who generally do not directly have the ability to purchase items? Are their specifics concern, from the point of view of developing technology that should be considered? In addition, the interests and needs of this population is rapidly evolving, as they are still refining their interests as they get to know new things, and enhance their educational context. Given the increasing use of technology by children, and the breadth of issues already identified, we feel it is necessary to bring this community together to work to build the community, collectively map out the field of RS for children, and to begin to address these issues together.

Why at RecSys. RecSys is a venue that historically encouraged academia and industry participation and there are academic and industry interests in RS for children. Furthermore, due to the interdisciplinary nature of the RS domain, researchers from varied disciplines are brought together, from machine learning and information retrieval to human computer interaction and privacy. Because diversity is welcomed at RecSys, we feel RecSys is an ideal venue to discuss and start to address the growing needs and issues related to child-centered RS.

Topic. Child-Oriented Recommender Systems.

Format. An interactive workshop, meant to congregate researchers and experts from multiple disciplines, in order to understand the ethical, pedagogical, and technical implications of designing and developing RS that can be of use for children, whether for leisure or educational activities.

Submissions. We anticipate a regular call for *short papers* (4 pages) discussing novel work in progress and *position papers* (2 page extended abstract) focusing on open challenges in promising research directions as well as speculative or innovative work in progress.

Workshop Chairs

Jerry Alan Fails (jerryfails@boisestate.edu) - Associate Professor, Computer Science Department, Boise State University. Jerry's research is in the area of human-computer interaction, with particular focus on designing, developing, and evaluating technologies *with* and *for* children. Jerry has participated on and led participatory design groups where children and adults work together as design partners for the last fourteen years. He has developed and evaluated several technologies for children, most of which are for informal educational purposes and leverage technology to bring children together and encourage them to explore their environment. He has organized workshops and courses at CHI, and reviewed for and served on the program committee for CHI, IDC (Interaction Design and Children) and other conferences and journals.

Sole Pera (solepera@boisestate.edu) - Assistant Professor, Computer Science Department, Boise State University. Sole's research work focuses on the application of information retrieval, information extraction, and natural language processing techniques for developing RS, primarily for children, including book recommenders for K-12 readers and recommenders that target parents & teachers. Sole's work related to information retrieval applications tailored towards children, such as query suggestion and search intent tools that can enhance the location of educational materials in the Web search environment, has been funded[1] by the NSF (National Science Foundation). She has served as PC and reviewer for conferences and journals related to RS and Information Retrieval, including ACM RecSys, Argentine Symposium on Artificial Intelligence, and Knowledge and Information Systems journal. She was also one of the co-organizers of International Workshop on Educational Recommender Systems, held in conjunction with 2016 IEEE/WIC/ACM International Conference on Web Intelligence.

Franca Garzotto (franca.garzotto@polimi.it)- Associate Professor in Computer Engineering at the Politecnico di Milano – Dept of Electronics, Information, and Bioengineering, she is responsible of the I3 (Innovative Interactive Interfaces) Lab. Her research interest and activities focus on innovative interfaces and interaction paradigms for children and for persons with special needs. She is an active member of the IDC (Interaction Design and Children) community and has served as Program Chair of 2 editions of the ACM IDC conference. She has contributed to the RS community with research on user-center evaluation of RS, design patterns for RS, and video recommendations. She served as European chair of ACM SIG-WEB (ACM Special Interest Group on Hypermedia & Web) and she is Member of the Evaluation Panel of ERC (European Research Council) Grants. She has organized over 50 tutorials and workshops, is the recipient of 2 IBM Faculty Awards, and has been project coordinator of 5 large EC funded projects.

Mirko Gelsomini (mirko.gelsomini@polimi.it) - PhD Student in Computer Engineering at Politecnico di Milano - Dept. of Electronics, Information, and Bioengineering, he is working in the I3 Lab. His research focuses on smart conversational objects and wearable virtual reality tools for children with special needs. Mirko worked for one year at the MIT Media Lab Personal Robots Group, in a project investigating whether a social robot modeled as a peer could be an effective and engaging language learning companion for young children over longitudinal encounters. His research also explores adaptive personalization for children through machine learning and its impact on learning. He was a finalist in the 2016 Microsoft Student Research Competition at ACM ASSETS 2016 and has received two best paper awards for his work.

[1] https://www.nsf.gov/awardsearch/showAward?AWD_ID=1565937

Duration & Participants

We envision KidRec as a full-day workshop. We anticipate between 20 to 30 participants.

Description of Workshop Activities

We aim to facilitate a highly participatory [4] workshop in which attendees can discuss the limitations and challenges of RS for children and identify possible solutions and avenues of research. We propose to accomplish this through an interactive format, including: community building exercises, informal interactions, facilitated group work, short paper and position paper presentation. An outline of the activities we envision for the workshop is presented below:

Morning:

- 9:00-9:15: Welcome
- 9:15-9:45: Icebreaker activity
  Introduce yourself to someone you don't know, talk about your research, recommend 1-2 people they should talk to at RecSys and 1-2 papers they should read that relate to their work. Switch. (So everyone is introduced to new people and has referrals to 2-4 other people.)
- 9:45-10:30: Interactive Panel 1 (See panel description below)
- 10:30-11:00: Morning Coffee Break
- 11:00-11:45: Interactive Panel 2
- 14:30-15:15: Interactive Panel 3
- Facilitate lunch group organization, issue lunch discussion assignment

Lunch: 12:30-14:00

Afternoon:

- 14:00-14:30: Report on lunch discussion assignment
- 14:30-15:15: Separate points of view → identify problems
  Sticky note frequency analysis - make small groups, but each individual writes down ideas for problems (one per sticky note), can discuss amongst groups as they write, workshop facilitators group and perform an informal frequency analysis of sticky notes, and have a brief the whole group about the identified problem areas and discuss groups identified, missed, etc.
- 15:15-15:45: Afternoon Coffee Break
- 15:45-16:00: Debrief problem identification
- 16:00-17:00: Comprehensive point of view → possible solutions
  - Low-tech/paper prototypes - create new small groups, and have the group focus on one of the problems identified and design a solution together.
  - Share designs with group.
- 17:00-17:30: Agreement on directions of the future work (outline future research in the area)

Interactive Panel Session Format:

- Submissions will be organized and grouped to create different interactive panel sessions
- 15 minutes: Ignite!-style presentations of 5-8 workshop participants
- 10 minutes: table discussions about the panel; round tables will be requested and each table will have 3-6 participants to have a small group discussion about the items discussed
- 20 minutes: Full group questions and answers, and whole group discussion
- We could utilize a technology back-channel such as todaysmeet or padlet.

Participants Section

As previously stated, we anticipate a call for *short papers* and *position papers* focusing on open challenges in promising research directions as well as speculative or innovative work in progress. We will select accepted papers through peer-review, for which we will recruit a Program Committee comprised of experts in diverse fields: recommender systems, human-computer interaction, child-computer interaction, information retrieval, educational recommenders, and ethics. We will reach out to *experts* on areas related to the topic of our workshop and invite them to submit position papers, which will serve as an ideal means to initiate the conversation on challenges, limitations, and diverse perspectives that prevent the design and development of RS that can be directly and widely adopted by children.

Publicity & Dissemination

The workshop will be promoted at conferences including CHI and IDC and also online through various channels, including social media (e.g., Facebook, Twitter) and sending CFP to forums like DBWorld and WikiCFP and relevant mailing lists, such as SIG-IRList, SIG-CHIList, IDC email lists, etc. Accepted short papers and position papers will be published on http://ceur-ws.org/ and on our workshop website. A report on discussion and findings from workshop interactions will be submitted to venues like SIGIR Forum, IDC, SIGCHI. We will also seek the opportunity for a special issue on KidRec in a journal such as *User Modeling and User-Adapted Interaction Journal* (UMUAI) Journal (Springer), ACM Transactions on Interactive Intelligent Systems (TiiS), or The International Journal of Child-Computer Interaction (Elsevier).

Prior Workshops on the Topic

To the best of our knowledge, there are have been no workshops on Children & Recommender Systems. However, a number of workshops have been held in the past few years in closely-related/complementary areas, which provide evidence of the interest of the research community in such a topic. *EdRecSys* [5], attracts researchers focused on recommender systems tailored to education. Search as Learning (*SAL*) [10], held last year at ACM SIGIR, assembled researchers interested in information retrieval, natural language processing, and education. Neither of the aforementioned workshops focus on K-12 populations. The ACM-sponsored conference *Interaction Design and Children* (IDC) offered last year a number of workshops that put children at the forefront [2, 9]. Their focus, however, if on how to design technology for children, not RS.

References

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10. Search as Learning Workshop. http://chauff.github.io/sal2016/