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# 3<sup>rd</sup> KidRec Workshop: What does good look like?

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**ABSTRACT**

Today's children spend considerable time online, searching and receiving information from various websites and apps. While searching for information, e.g. for school or hobbies, children use search systems to locate resources and receive site recommendations that might be useful for them. The call for good, reliable, child-friendly systems has been made many times and the thesis that the algorithms of "adult" information systems are not necessarily suitable or fair for children is widely accepted.

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However, there is still no clear and balanced view on what makes one search/recommendation system for children good or better than other systems, nor on what content should be considered “good enough to be retrieved” or recommended. The goal of this workshop is to bring together researchers and practitioners in education, child-development, computer science, and more who can address these questions while considering issues related to education, algorithms, ethics, privacy, evaluation.

### CCS CONCEPTS

• **General and reference** → **Evaluation**; • **Social and professional topics** → **Children**; • **Information systems** → *Evaluation of retrieval results*; Information retrieval; • **Human-centered computing** → *HCI design and evaluation methods*; Human computer interaction (HCI).

### KEYWORDS

Children, information retrieval, ethics, evaluation

### ACM Reference Format:

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### INTRODUCTION

Children’s access to the Internet has dramatically increased in the past fifteen years, which has engendered a significant change in the way they experience play and learning both on and off screen. Due to the overwhelming amount of digital content and services now available for children, it is critical to design good information systems for (and with) children in mind. But the question arises “what does *good* look like?”

Information Retrieval Systems (**IRS**<sup>1</sup>) are software tools that provide diverse users with resources that are relevant to their corresponding information needs [3]. IRS can aid children, as well as parents and educators, in finding materials for learning and play, e.g., books, videos, or digital games, that are not only of interest to the users, but are also developmentally and educationally appropriate. Some of the existing IRS are specifically designed for children. Among these we find Youtube-Kids, Web for Classrooms, SuperAwesome, International Children’s Digital Library (ICDL), and ABCMouse. However, there are IRS that are intended for adults but are widely used by children. Among these “general audience” counterparts are Google, the most popular search site, and YouTube.

Following the success and interest of participants in the first and second editions of KidRec, we propose to hold the 3<sup>rd</sup> International and Interdisciplinary Perspectives on Children & Recommender and Information Retrieval Systems (**KidRec**): *What does good look like?* at the upcoming 2019 IDC Conference to expand the network of researchers in this area and the scope of our research and design

<sup>1</sup>We use the general term information retrieval system to describe a whole set of systems selecting and ordering information given a certain information need such as web search systems, recommender systems and filtering systems.

agenda. Specifically, this edition of the workshop will focus on all kinds of evaluation approaches – not only in terms of algorithmic metrics such as *number of relevant documents* or general user satisfaction, but expanding beyond those to capture other elements of algorithmic efficiency and user experience. We will also discuss ways to ensure that user needs are met to also include critical issues such as ethics, privacy, and security.

The goal for this workshop is to define what is good when it comes to IRS designed for children and their outputs by bringing together researchers in education, child-development, computer scientists, designers, and others who address several issues including those related to education, algorithms, ethics, privacy, and evaluation. The central question in this workshop is how can we compare, assess, and improve IRS designed for children? Which methods and techniques from both theory and practice can we use to achieve useful evaluations? In this workshop we will: discuss and identify various methods and techniques related to evaluating information retrieval systems designed for children including user needs and systems' challenges and limitations, share approaches that participants and others have utilized (including what has and has not worked), and discuss possible solutions to the identified challenges and plan for future research. More importantly, we will expand a community that explicitly looks at these critical issues and discuss the ethical questions involved in *evaluating* systems designed for children.

## **BACKGROUND**

With the increased content available to children online, new ways to access high-quality information is needed. IRS detailed in the literature [3, 13, 15] – for the most part – have been developed to serve adult users, who can offer relevant information. While evaluating IRS for adults have been practiced for several decades, e.g. the yearly organized TREC [14], the evaluation of IRS for children has only begun to be studied [6–10, 12].

A reflection on the evaluation issues specific for IRS for children leads to several questions that need to be answered from an interdisciplinary perspective to allow for a holistic understanding of their impact on individual children. Given that children's access to online content is global, it also requires an international perspective that would incorporate best evaluation practice on the use of IRS for educational and commercial purposes from a global viewpoint. Current evaluation frameworks lack the child perspective and are only focused on adults. For example, the notion of relevance defined by recall and precision are insufficient indicators for children. It seems to be that children are more interested in content that is interesting, amusing or informative, and not just results that are precise and relevant.

### Goals

As an interactive workshop, KidRec aims to bring together researchers and experts from multiple disciplines, in order to understand the ethical, pedagogical, academic and technical implications of evaluation of IRS for children. We intend to do this by accomplishing the following three main goals:

- (1) Discuss and identify evaluation techniques related to IRS designed for children; present and discuss different experiences (positive experiences, along with challenges and limitations) that can contribute to best practices within an IRS framework of evaluation;
- (2) Explore the existing obstacles to a general framework for evaluations and the possible solutions to the identified challenges and plan future research directions; and,
- (3) Continue to build a community to directly work on a general framework for evaluating child-friendly IRS.

**Table 1: Overview of KidRec Workshops**

Year	Overview
2017	Co-located with RecSys 2017 in Cuomo, meant to start building a community that explores the constraints, limitations, existing strategies, and identify future research paths to nurture and advance the research on recommender systems for children [11].
2018	Co-located with IDC 2018 in Trondheim, explored research and industry efforts surrounding the algorithmic search and recommendation process for children [4].
2019	Co-located with IDC 2019 in Boise, the focus will be on evaluation and “What does good look like?”.

### Workshop History

To the best of our knowledge, there have been no workshops on children and IRS beyond the KidRec editions we organized at RecSys 2017 [11] and at IDC 2018 [4]. Insights from KidRec 2018 reinforced our conviction that there is a need for interdisciplinary communities to come together and jointly discuss these challenges. One of the key open question that emerged during the last challenges noted at the workshop was that of *what does a “good” IRS look like?* Furthermore, there is paucity of evaluation methodologies that can be used to evaluate IRS for children.

The ACM-sponsored IDC offers a number of workshops that put children at the forefront [1, 2]. Following the success and interest of participants in the previous KidRec [4, 11], we propose to add to the diversity of workshops offered with children’s technology in mind. IDC is a venue that has historically focused on technology development for and with children. Because diversity is welcomed at IDC, we feel it is an ideal venue to continue the discussion on growing needs and issues related to the evaluation of child-centered IRS.

### Organizers

**Theo Huiber’s** research focuses on the topic of Child Media Interaction and he is a professor in Human Media Interaction & Computer Science at the University of Twente in the Netherlands. Huibers co-initiated a European FP7 research project called PuppyIR in 2008. This international project was granted 4.3M euro from the European Commission, which was used for a three year study (2009-2012) on all aspects (e.g. ethics, data-gathering technology and business models) of developing an open-source search and media environment for children. (see <http://wwwhome.ewi.utwente.nl/puppyir/website/index.htm>). Additionally, he is the co-founder of a Dutch/UK internet child-focused company WizeNoze (founded in 2013).

**Jerry Alan Fails** is an Associate Professor in the Computer Science Department at 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 15 years. He has developed and evaluated several technologies for children. He has organized workshops and courses at CHI, and reviewed for and served on the program committee for CHI, IDC, and other conferences and journals.

**Natalia Kucirkova** is Professor of Early Childhood Education at the University of Stavanger, Norway. Her research concerns innovative ways of supporting children's book reading, digital literacy and exploring the role of personalisation in early years. She co-developed an award-winning children's app "Our Story" and has widely published on early literacy and children's technology. Her research takes place collaboratively across academia, commercial and third sectors. Natalia is a Fellow of the Royal Society for Arts, Chair of the judging panel for the UKLA Children's Digital Book Awards and Advisory Board Member for Save The Children. She co-edits the Bloomsbury Academic Book Series Children's Reading & Writing on Screen.

**Monica Landoni** is a Senior Researcher at the faculty of Informatics at Università della Svizzera Italiana, USI, in Lugano. She has worked on a number of national and European projects investigating how technology can support children when searching, writing and reading for education and pleasure. While doing that she has happily survived the design and running of many collaborative design sessions in formal and informal settings. Carefully taking into account the different needs, requests, roles and points of views of parents, teachers, librarians, and always putting children first.

**Emiliana Murgia** is a primary school teacher at the Stoppani Institute in Milan, where she works on developing and experimenting innovative teaching methods with technology. She is also affiliated to the department of Human Sciences for Education at the University of Milano Bicocca. Emiliana has worked on many national projects investigating how technology can support children so that they can get the best out of their learning experience. After joining KidRec 2018 last year in Trondheim, she is now very eager to bring the voices of teachers to this new edition.

**Maria Soledad Pera** is an Assistant Professor in the Computer Science Department at Boise State University. Sole's research focuses on IR and her work related to IR applications tailored towards children, such as query suggestion and search intent tools that can enhance the location of educational materials on the Web, has been funded by the National Science Foundation. She has served as PC and reviewer for conferences and journals related to IR and was General Chair of ACM RecSys 2018. 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 and 1<sup>st</sup> and 2<sup>nd</sup> editions of the International Workshop in Children and Recommender Systems held in conjunction with the 2017 ACM RecSys and the 2018 ACM IDC Conferences, respectively.

**Table 2: Workshop Schedule**

Time	Activity
8:30	Welcome to KidRec 2018
9:30	Icebreaker
9:45	Interactive Panel 1 (see Table 3)
10:30	Morning Coffee Break
11:00	Interactive Panel 2 (see Table 3)
11:45	Keynote
12:30	Facilitate Lunch Groups
12:35	Lunch & Assigned Discussions
14:00	Lunch Discussion Reports
14:15	Building the Framework
15:00	Afternoon Coffee Break
15:30	Complete and Test Framework
16:15	Wrap-up and Discuss Next Steps

**Table 3: Interactive Panel Format to be used to present and discuss work, and identify elements and use-cases for the IRS framework.**

Mins	Description
15	Ignite!-style presentations of 5-8 workshop participants.
10	Table discussions about the panel presentations; movable tables will be requested and each table will have 3-6 participants to have a small group discussion about the items discussed.
20	Full group questions and answers, and discussion.

**Website**

The website will offer potential attendees information pertaining to objectives for the workshop, contact information of organizers, important dates associated with KidRec, information related to work submission, list of accepted papers, and outline of the program. **URL:** <https://kidrec.github.io/>

**PRE-WORKSHOP PLANS**

We anticipate a call for *papers* and *position papers* focusing on open challenges in promising research directions as well as speculative or innovative work in progress. We will reach out to experts in areas related to the topic of our workshop and invite them to submit position papers, which will initiate the conversation concerning the challenges, limitations, and diverse perspectives that hinder IRS design, development and evaluation for children.

**Promotional strategy**

The workshop will be promoted at conferences including CHI 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, Dev-Europe, ID-Research-UK and IDC email lists. We will also directly reach out to practitioners (e.g., educators) and industry experts so that they can participate of the workshop.

**WORKSHOP STRUCTURE****Overview**

We envision KidRec as a full-day, interactive workshop, for between 15 to 25 participants. We anticipate a call for *short papers* (4-6 pages) discussing novel work and *position* and *work-in-progress papers* (2-4 pages) focusing on open challenges in promising research directions.

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 professionals, ethics experts, and educational psychologists.

**Proposed Activities**

We aim to facilitate a highly participatory [5] workshop in which attendees can discuss the limitations and challenges of IRS 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, and ignite-style presentations of accepted contributions. An outline of the activities we envision for the workshop is in Table 2. Throughout the Interactive Panel

Sessions (see Table 3), participants will engage in short presentations of the accepted contributions, identify elements needed for the IRS framework, and propose ways the proposed framework can be applied to different use-cases and contexts (e.g., academic vs. industry IRS). This includes seeking to identify limitations of current strategies and techniques for evaluation of IRS. This will be done via a combination of small and large group activities.

### **Keynote**

In keeping with our proposed the theme of evaluating IRS for this the third KidRec workshop, upon acceptance of the workshop we will identify a suitable keynote speaker and extend an invitation so that she/he can offer an overview of evaluation methodologies for IRS for children.

### **Resources Needed for Workshop**

To facilitate discussion and activities, we request a round-table organization, as opposed to classroom setting. For presentations, a screen and projector would be ideal. To engage attendees in interactive problem-solving activities, we will need sticky notes, a whiteboard and/or large sticky paper pads.

### **POST-WORKSHOP PLANS**

Accepted short papers and position papers will be published on the KidRec website. A report on discussion and findings from workshop interactions will be submitted to venues like SIGIR Forum. We will also seek the opportunity for a special issue on KidRec in a journal such as ACM Transactions on Interactive Intelligent Systems, The International Journal of Child-Computer Interaction, or ACM Transactions on Computer Human Interaction.

### **CALL FOR PARTICIPATION**

Children regularly use search and recommendation systems (for education and leisure purposes), yet they are faced with resources that might not be useful for them. The call for reliable, child-friendly information retrieval systems (IRS) has been made many times and the thesis that algorithms of “adult” IRS are not necessarily suitable or fair for children has been proven. However, there is still no clear view on what makes such IRS (and their outputs) good. The focus of this workshop will be on: how to assess and compare IRS for children. Collectively we will answer: Which strategies from theory and practice can be used to achieve useful evaluations? We will work to build on current evaluation frameworks to construct an effective evaluation framework for IRS. We invite researchers in education, child-development, computer scientists, designers, and more who can: discuss diverse methods and techniques for evaluating children IRS, outline a general evaluation framework, and build a community that can explicitly look at issues with existing evaluation methodologies and plan for future research.

The goal of this interactive workshop is to share and discuss research and projects that reach beyond classic IRS evaluation. We invite submissions of *short papers* (4-6 pages) discussing novel work and *position papers* or *work-in-progress* (2-4 pages) focusing on open challenges in design evaluation; interviews; static analysis, etc. All papers will be peer-reviewed, and at the time of submission, must not be under review in any other venue. At least one author of each accepted paper must register and attend the workshop and main conference. We welcome all interested conference attendees (even those without an accepted paper) as long as they register for the main conference and workshop in advance. For further information, see: <https://kidrec.github.io/>

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