

## Independent Study Report – Denis Parra – 2970 - Fall 2010

### Conference Navigator 3: New features

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#### Introduction

Conference Navigator 3 (CN3)<sup>1</sup> is a web system that supports conference attendees and organizers. It provides features to aid users on usual activities in a conference such as a schedule (aka conference program), proceedings, and details of each talk. However, the main purpose of CN3 is to provide features underpinning personalization, navigation support, and ultimately, social engagement.

This document describes the current functionalities of CN3 organized in those available publicly (without the need of an account), those available for users of CN3, and those specifically designed for conference attendees. In the last section, I describe some issues present in the current version of the platform and

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<sup>1</sup> <http://halley.exp.sis.pitt.edu/cn3/>

some ideas for enhancement. In addition, in order to visualize and to unveil the characteristics of the network created by co-bookmarking users during a conference, I also present a section describing the networks of users and authors of the UMAP 2011 conference.

## General Features

The Home page of CN3 presents a list of conferences, grouped by series or topics. Currently, the groups are: a) User Modeling & Personalization, b) Internet & Networks, c) Technology and Education, d) Library and Information Sciences, and de) Telecommunications and Policy

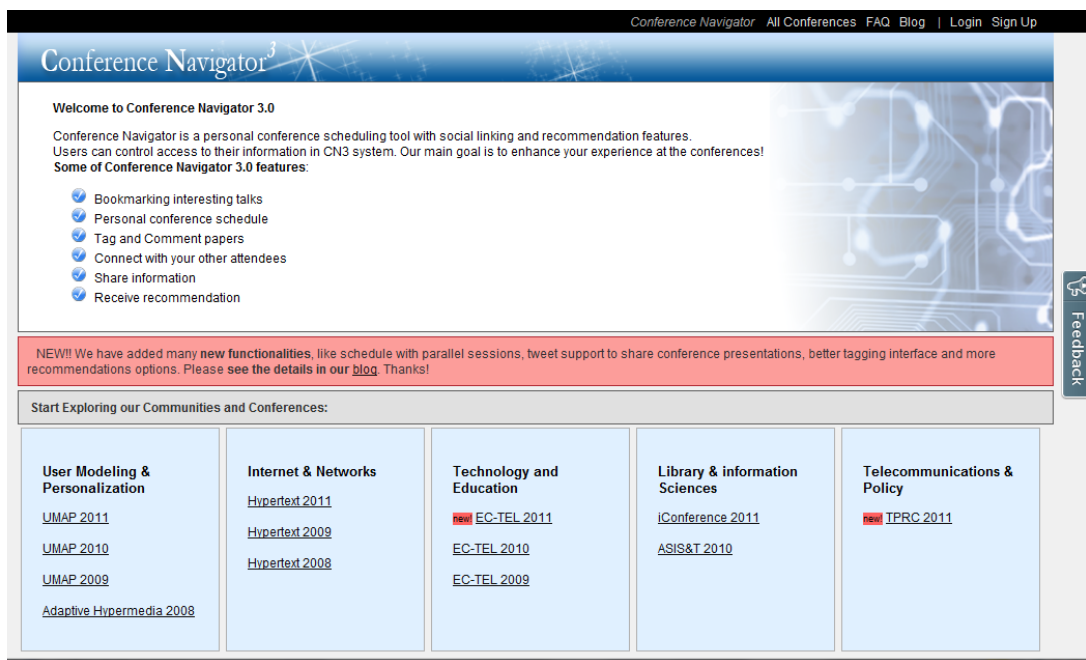


Figure 1: Cn3 Home page, with the general menu on the top and the list of conferences in the bottom.

## Proceedings (proceedings.php)

In this section the user can see the complete list of talks of a conference. Depending on the information provided by the organizer, this list can include the main papers of the conference, posters, talks, panels, and even workshop papers. This page has some filtering features, as shown in Figure 2:

- Order By: The users can sort the list by author's first name, presentation title, and presentation type.
- Filters: CN3 allows the users displaying specific types of talks by clicking on the links at the top of the list of contents. For instance, in figure 2, by clicking on the link "Invited Talk", Cn3 will display only those talks listed under that category.
- Expand/Collapse abstracts: Users can expand and collapse the abstract of each talk by clicking on the boxes "See more details", or they can toggle the abstract of the whole list of papers by clicking on "Toggle all article details"

Conference Navigator All Conferences FAQ Blog Login Sign Up

UMAP 2011 Network Visualizations Proceedings Top Items Schedule

Order articles by: Author's first name Presentation Title Presentation Type Toggle all articles details

See All Pages Invited Talk Tutorial Long Research Paper Industrial track Short Research Paper Doctoral consortium Poster Workshop Invited Talk Workshop Paper Workshop Short Paper Workshop Poster Paper

**Opening Keynote**  
 Authors: Ricardo Baeza-Yates  
 Type: Invited Talk  
 Track: UMAP2011  
 Tags: general keynote overview invited.talk yahoo yahoo!.user.insentiv no 123  
 DOI: See more details

**Personalized Filters Yes: Bubbles No**  
 Authors: Paul Resnick  
 Type: Invited Talk  
 Track: UMAP2011  
 Tags: filter-bubble personalization filtering recommender systems recommender invited  
 DOI: See more details

**Designing and evaluating new generation user modeling**  
 Authors: Federica Cena, Cristina Gena  
 Type: Tutorial  
 Track: UMAP2011  
 Tags: design adaptation evaluation representation clustering cena !@ mark  
 DOI: See more details

**Personalization, persuasion, and everything in-between**  
 Authors: Shlomo Berkovsky, Jill Freyne  
 Type: Tutorial  
 Track: UMAP2011  
 Tags: personalization persuasion  
 DOI: See more details

Feedback

Figure 2: Conference Proceedings Page.

**Data model representation:** In order to present in a coherent list talks that have regular content such as author(s), title, and abstract, unlike other talks that don't have such a consistent structure such as panels or discussions, we have modeled two entities in the DB: presentation and content. The relation between these two entities it is one-to-many: one content can be associated to several presentations.

### Top Items (top.php)

Figure 3 presents top.php, with the list of entities that have shown the largest activity in the system. Items most scheduled, users more active on scheduling, institutions whose users have been more active scheduling, and most used tags are the rankings shown by default when the user is not logged in the system.

Conference Navigator All Conferences FAQ Blog | Login Sign Up

UMAP 2011 Network Visualizations Proceedings **Top Items** Schedule

Personalized recommendations legend >> Recommended Recommended Paper #RC: Recommended Connection #RF: Recommended to Follow  
\* You need to login, schedule some presentations, follow some people and request some Connections in order to see these recommendations.

**Most Scheduled**

- 1. Recognising and Recommending Context in Social Web**  
Authors: Zurina Saaya, Barry Smyth  
Type: Long Research Paper  
Track: UMAP'2011  
53 people scheduled (+)
- 2. Analyzing User Modeling on Twitter for Personalized News Recommendations**  
Authors: Fabian Abel, Qi Gao, Geert-Jan Houben, Ke Tao  
Type: Long Research Paper  
Track: UMAP'2011  
52 people scheduled (+)
- 3. Walk the Talk: Analyzing the relation between implicit and explicit feedback for preference elicitation**  
Authors: Denis Parra, Xavier Amatriain  
Type: Long Research Paper  
Track: UMAP'2011  
51 people scheduled (+)
- 4. Location-Adapted Music Recommendation Using Tags**  
Authors: Marius Kamnitskas, Francesco Ricci  
Type: Long Research Paper  
Track: UMAP'2011  
47 people scheduled (+)
- 5. User Modeling - a Notoriously Black Art**  
Authors: Michael Yudelson, Philip I. Pavlik, Kenneth R. Koedinger  
Type: Long Research Paper  
Track: UMAP'2011  
46 people scheduled (+)
- 6. Tag-Based Resource Recommendation in Social Annotation Applications**  
Authors: Jonathan Gemmill, Tom Schimoler, Bamshad Mobasher, Robin Burke  
Type: Long Research Paper  
Track: UMAP'2011  
38 people scheduled (+)
- 7. Opening Keynote**  
Authors: Ricardo Baeza-Yates  
Type: Invited Talk  
Track: UMAP'2011  
38 people scheduled (+)

**Most Active Schedulers**

Peter Brusilovsky(48) Thieme Hennis(48)  
Ilknur celik(46) Julita(43) Rizki Prince(43)  
Samara Ruiz(38) Iñaki Calvo(36) Gudrun Kellner(36)  
Rui Neves Madeira(34) Shahram(33)  
Tomas Kramar(30) Frederic Font(29)  
Juan Manuel Vaca Sánchez(28) Toby Dragon(25)  
harshit kumar(24) Bamshad Mobasher(23)  
Antonina-Dattolo(23) Claudia Lopez(23)  
Matjaž Kljun(22) Adam Moore(20) Denis Parra(20)  
mariab(19) Alejandro Bellogin(19) Alan Said(19)  
Santiago Domínguez-Noriega(18)

**Most Active Scheduling Institutions**

University of Pittsburgh(142)  
Delft University of Technology(104)  
Universidad del País Vasco/Euskal Herriko Unibertsitatea(62)  
Vienna University of Technology(51)  
Saskatchewan(43)  
University of Southampton(43)  
Free University of Bozen-Bolzano(40)  
Polytechnic Institute of Setúbal(34)

Feedback

Figure 3: Top Items, the page that summarizes entities with the largest activity during a conference.

The largest section in this page is devoted to showing the rank of most scheduled papers, with the most popular at the top. Each paper is presented in a separate box by its title, authors, type of paper, and conference track, as shown in Figure 4. In addition, the bottom-right corner shows the total number of users that have scheduled that paper. By clicking on that message, the system shows an expanded box with the names of the users that have scheduled that particular paper.

**1. Recognising and Recommending Context in Social Web**  
Authors: Zurina Saaya, Barry Smyth  
Type: Long Research Paper  
Track: UMAP'2011  
53 people scheduled (+)

Shahgheygh Sahebi (Sherry) Denis Parra Chirayu Wongchokprasitti Eelco Herder mariab fabian  
Reza Razavi Federica Cena Yue Shi Josh Eno Tomas Kramar Marcelo Armentano harshit kumar  
Rosta Farzan Sharon Hsiao Ivan Cantador Rong Hu Ante Odic Catherine Mulwa Aaron Quigley  
Alejandro Bellogin Dimoklis Despotakis Ekaterina Kurdyukova Thieme Hennis Pasquale Lops Frederic Font  
Claudia Lopez Maria Soledad Pera Laura Verinder Victor Grishchenko Rui Neves Madeira Markus Zanker  
Iliaria Torre Francesco Ricci Kalina Yacef Andrew Fedorovsky Antonina-Dattolo Alan Said Samara Ruiz  
Iñaki Calvo Adam Moore Julita Giuseppe Sansonetti Peter Brusilovsky Michal Baria Rosta Farzan  
Linus Baltrunas Wolfgang Gassler Eva Zangerle Matjaž Kljun Michael Yudelson Floriano Zini Ilknur celik

**2. Analyzing User Modeling on Twitter for Personalized News Recommendations**  
Authors: Fabian Abel, Qi Gao, Geert-Jan Houben, Ke Tao  
Type: Long Research Paper  
Track: UMAP'2011  
52 people scheduled (+)

**3. Walk the Talk: Analyzing the relation between implicit and explicit feedback for preference**

Figure 4: Detail of a paper presented in Top Items, with the expanded list of users

## Schedule (legacy.php)

The page Schedule presents the program of the conference organized by days and sessions. Sessions belong to specific days and they can run in sequence and also in parallel. The general view of this page is shown in Figure 5.

The screenshot displays the UMAP 2011 conference page schedule. At the top, there is a navigation bar with links for 'Conference Navigator', 'All Conferences', 'FAQ', 'Blog', 'Login', and 'Sign Up'. Below this is a search bar and a 'Schedule' button. The main content area shows a grid of session boxes for July 11-15. Each session box has a yellow header with the time and session title, and a white body with details like location, opening time, title, authors, type, track, and tags. The sessions are organized into columns for different times of the day.

Figure 5: Page Schedule, showing the whole program of the conference.

The header of each session box (with yellow background) presents the time on which the session runs, the title of the session and its location. One drawback in the implementation of this page is that session boxes that run in parallel, where the sessions start and end at the same time, are not always of the same size, since it depends on the amount of text inside them. However, there is important information shown about every talk inside a session: a) Title, b) Time, c) Authors, d) Type, e) Track, and when available, f) Tags.

### Talk/Paper details (presentation2.php)

The details of each paper/talk are presented on this page. The information available is a) Title, b) Authors, c) Track, d) Scheduled (the date and time this talk will be presented), e) Abstract. When available, DOI information of the possible is also displayed. In addition, there is a panel on the right side of the page showing: a) Attending: which users will attend to that talk, b) Tags: Free keywords that users have added to classify or identify this paper/talk, c) Search box: a text box where users can type to search for other papers.

On this page there are also links to allow the user login into the system, these links will forward the user back to the paper details so they they schedule it or do any other action on it.

One distinctive feature of this page is the widget "People who bookmarked this presentation, also bookmarked", which, as the name says, shows papers/talks that have been co-bookmarked this the paper shown.

The screenshot shows the details page for a presentation at UMAP 2011. The title is "Building Trust Communities Using Social Trust". The authors listed are Surya Nepal, Wanita Sherchan, and Cecile Paris. The paper is a Workshop Poster Paper from the TRUM2011 track, scheduled for 2011-07-11 from 10:50-11:00. The abstract discusses the growing popularity of web-based social networks and the need for trust models. A section titled "People who bookmarked this presentation, also bookmarked:" features three related papers: "Recommending Services in a Trust-Based Decentralized User Modeling System (4)", "The Influence of Interaction Attributes on Trust in Virtual Communities (4)", and "Handling Subjective User Feedback for Reputation Computation in Virtual Reality (3)". The page includes navigation links like "Network Visualizations", "Proceedings", "Top Items", and "Schedule", along with a search bar and a feedback button.

Figure 6: Paper details page (presentation2.php)

### Search by keyword (searchResult.php)

Cn3 Users access this page as a result of searching on the textboxes provided in Schedule (legacy.php) or Paper details (presentation2.php). It provides a list of papers/talks that match the query issued, with some metadata associated with each one. In addition, the system provides a link to each one “Sign in to schedule”, in order to help the user logging in into the system and CN3 will redirect her back to this page.

Conference Navigator All Conferences FAQ Blog | Login Sign Up

UMAP 2011 Network Visualizations Proceedings Top Items Schedule

Results for **user**

Time: 2011-07-11 09:30-11:00 [Sign in to schedule](#)  
Designing and evaluating new generation user modeling  
 Type: Tutorial  
 Authors: Federica Cena Cristina Gena  
 Tags: adaptation evaluation design clustering representation cena l@ mark  
 Abstract: The new context of web that put together new technologies and communication paradigms (semantic web...)

Time: 2011-07-11 10:00-10:15 [Sign in to schedule](#)  
Supportive adaptive user interfaces inside and outside the home  
 Type: Workshop-UMADR  
 Authors: Raul Minon Julio Abascal  
 Tags:  
 Abstract: This paper describes the extension of AmbientNet, a previously developed architecture for an Ambient ...

Time: 2011-07-11 10:10-10:35 [Sign in to schedule](#)  
Recommending Services in a Trust-Based Decentralized User Modeling System  
 Type: Workshop-TRUM  
 Authors: Sabrina Nusrat Julita Vassileva  
 Tags:  
 Abstract: Trust and reputation mechanisms are often used in peer-to-peer networks, multi-agent systems and onl...

Time: 2011-07-11 10:15-10:30 [Sign in to schedule](#)  
User Modeling for Natural Interaction  
 Type: Workshop-UMADR  
 Authors: Leonardo Castaño Francisco Javier Calle Dolores Cuadra Elena Castro  
 Tags:  
 Abstract: The purpose of this paper is to describe an implementation of a user modeling system designed to sup...

Time: 2011-07-11 10:35-10:50 [Sign in to schedule](#)  
Handling Subjective User Feedback for Reputation Computation in Virtual Reality  
 Type: Workshop-TRUM  
 Authors: Hui Fan Mural Seneviratna Jia Zhang Nadia Mannan Thalman

Figure 7: Page showing the results of a search (searchResult.php)

## Search by Tag (searchByTag.php)

By clicking on the links associated to tags in proceedings, schedule and paper details pages, CN3 will return a page with a list of the paper that have been tagged with the correspondent tag. The resulting page is not shown here since it is almost identical to the one shown in Figure 7 that displays the results of a query search.

## Other features for non-authenticated users

There are also three pages for non authenticated user that are described altogether here since they have a minor impact in terms of direct user interaction.

**FAQ:** In this page there is a list of frequently asked questions that currently serves as the only documentation of the system for users.

**Blog:** This a link to the URL <http://conferencenavigator.posterous.com/>, where the developers' team posts news about functionality, bug fixes, or other discussions related to the system.

**Feedback:** This widget, located on the right side of every page in CN3 as a floating div, allow the users to provide their opinion regarding bugs, request for new features, or any other comment.

## Main user features

Once a user has been authenticated in the system, she should be able to: a) navigate through same pages described in the previous section with enhanced features, and b) navigate through new pages.

### Enhanced features for logged in users in non-authenticated user pages

#### *Proceedings (proceedings.php)*

When the user is authenticated, she can add talks to her schedule, as Figure 8 shows. In addition, the dialog to schedule a talk allows the user to provide tags.

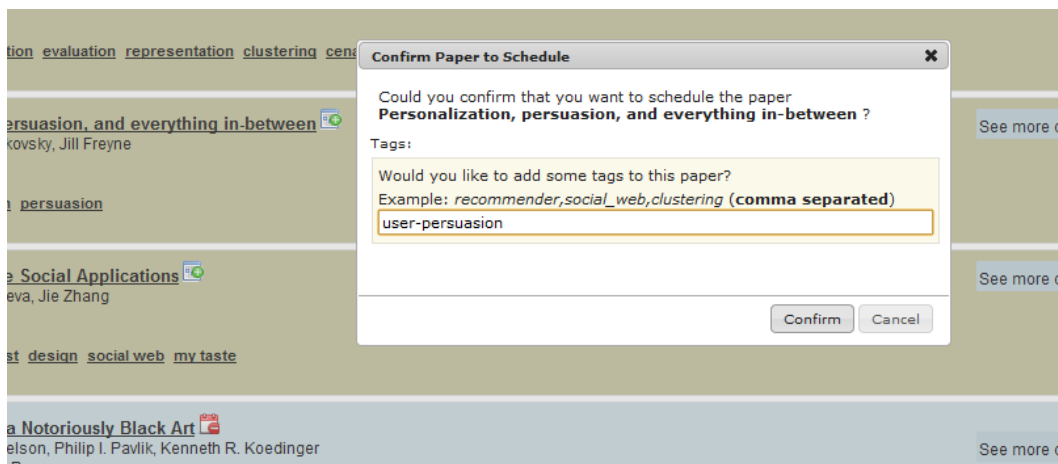


Figure 8: Schedule and tagging dialog in proceedings page.

#### *Top Items (top.php)*

In the Top items page, the authenticated user will be able to see the most active items in the conference by two social filters that can be accessed in the top tab menu: a) Most scheduled within my connections, and b) Most scheduled within the people I follow. When available, the user will see contextual recommendations.



Most Scheduled: [Globally](#) | **Within My Connections** | [Within People I Follow](#)

**1. [Recommending Services in a Trust-Based Decentralized User Modeling System](#)**  
 Authors: Sabrina Nusrat, Julita Vassileva  
 Type: Workshop Paper  
 Track: TRUM2011  
 3 connections scheduled (total: 8) (+)  
 Thieme Hennis, Inaki Calvo, Jan Samek, [Shaghayegh Sahebi \(Sherry\)\\*](#), Julita [Peter Brusilovsky\\*](#), [Chirayu Wongchokprasitti\\*](#), William Hsu

**2. [Tag-Based Resource Recommendation in Social Annotation Applications](#)**  
 Authors: Jonathan Gemmell, Tom Schimoler, Bamshad Mobasher, Robin Burke  
 Type: Long Research Paper  
 Track: UMAP2011  
 3 connections scheduled (total: 38) (+)

**3. [Walk the Talk: Analyzing the relation between implicit and explicit feedback for preference elicitation](#)**  
 Authors: Denis Parra, Xavier Amatriain  
 Type: Long Research Paper  
 Track: UMAP2011  
 3 connections scheduled (total: 51) (+)

**4. [Recognising and Recommending Context in Social Web](#)**  
 Authors: Zurina Saaya, Barry Smyth  
 Type: Long Research Paper  
 Track: UMAP2011  
 3 connections scheduled (total: 53) (+)

**5. [Enhancing traditional local search recommendations with context-awareness](#)**

**Most Active Schedulers within My Connections**  
 Peter Brusilovsky(48) Chirayu Wongchokprasitti  
 Shaghayegh Sahebi (Sherry)(13)

**Most Active Scheduling Institutions within My Connections**  
 University of Pittsburgh(290)

**Most Used Tags within My Connections**  
 recommender (6) tagging (4) social-web (2)  
 social-search (2) recommender (2) Local (2)  
 visualization (2) trust (2) mobile-guide (2)  
 adaptive-web (1)

Figure 9: Details of top items among connections.

**Schedule (legacy.php)**

Similar as proceedings, in the schedule page the authenticated user can schedule a talk by click in the calendar icon by the title of each talk. CN3 will display a dialog as the one in Figure 10 that will allow the user also to add tags to the talk she is scheduling.

**Confirm Paper to Schedule**

Could you confirm that you want to schedule the presentation **Impact of implicit and explicit affective labeling on a recommender system's performance** ?

Tags:

Would you like to add some tags to this paper?  
 Example: *recommender, social\_web, clustering* (comma separated)

[Confirm](#) [Cancel](#)

Figure 10: Scheduling and tagging dialog available for authenticated users in the Schedule page.

**Talk/Paper details (presentation2.php)**

A user authenticated can access three features not available for non-authenticated users: a) Schedule a talk, Figure 11, b) Add tags to a talk, Figure 12, and c) Add comments to a talk, choosing with whom to share the comment, Figure 13.



Figure 11: Add to schedule button in the talk details page.

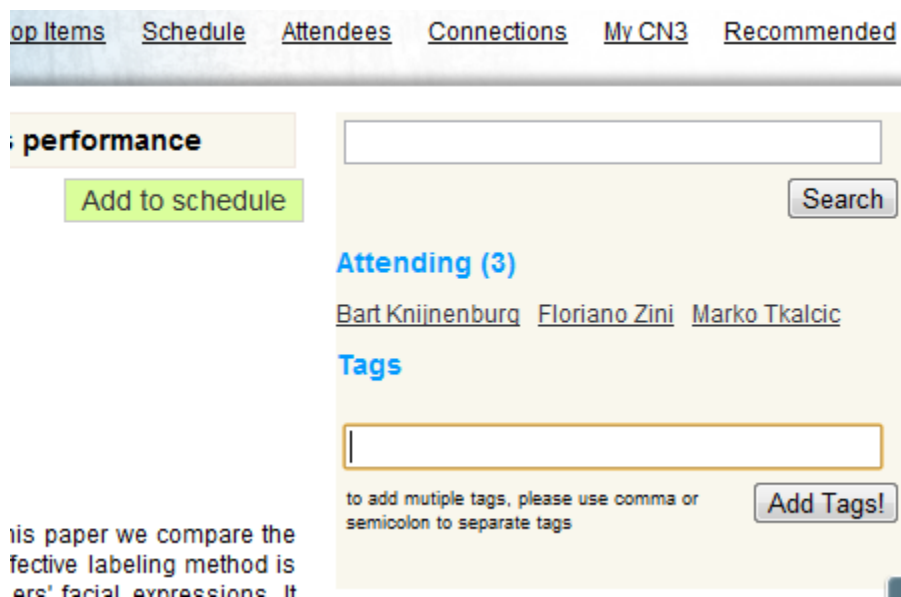


Figure 12: Add tags functionality in the talk details page.

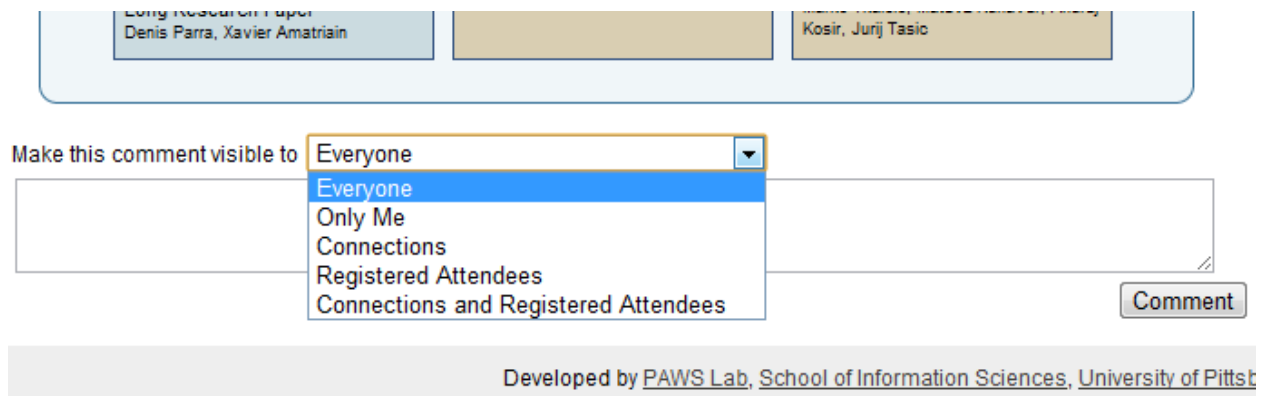


Figure 13: Comments feature with different levels of visibility in the talk details page.

### ***Search by keyword (searchResult.php) and search by tag (searchByTag.php)***

On this page, authenticated users will see two additional features: a) highlighted talks that have been already scheduled, and b) a link to schedule talks from the list of results. Figure 14 shows a screenshot of the results in the search by keyword page. Search by tag page is omitted since the functionality is almost identical.

**Time:** 2011-07-11 15:00-16:30 [Add to schedule](#)  
**Designing Adaptive Social Applications**  
**Type:** Tutorial  
**Authors:** Julita Vassileva Jie Zhang  
**Tags:**  
**Abstract:** User- and context- adaptation are crucial to help the user deal with the information overload resul...

**Time:** 2011-07-11 17:00-18:30 [Add to schedule](#)  
**Designing Adaptive Social Applications**  
**Type:** Tutorial  
**Authors:** Julita Vassileva Jie Zhang  
**Tags:**  
**Abstract:** User- and context- adaptation are crucial to help the user deal with the information overload resul...

**Time:** 2011-07-12 16:00-16:30 [In your schedule](#) [Cancel](#)  
**Recognising and Recommending Context in Social Web**  
**Type:** Long Research Paper  
**Authors:** Zurina Saaya Barry Smyth  
**Tags:**  
**Abstract:** In this paper we focus on an approach to social search, HeyStaks that is designed to integrate with ...

Figure 14: Results of a search in the search by keyword page by an authenticated user.

### **Pages available only for authenticated users**

In the current implementation of CN3, this is the user feature more extended along the system. Users can schedule a talk by clicking on icons available on the Proceedings and Schedule

#### ***My CN3 (my.php) : Checking self-user profile***

Authenticated users use this page to see: a) A summary of their profile information, b) the list of talks they have scheduled, and c) their connections (bidirectional relationships), user they follow and users that follow them. Figure 15 presents a screenshot of this page. If available, the system also presents a list of recommendations of user to follow or to connect to.

**Denis Parra** [Edit my profile](#)  
 Position/Affiliation: at University of Pitt  
 Website: <http://www.sis.pitt.edu/~dparra>  
 LinkedIn: [Public Profile at LinkedIn](#)

**My scheduled Talks(21)**

- 2011-07-11 09:30-11:00 Auditorium  
**Designing and evaluating new generation user modeling**  
 Tutorial - Designing and evaluating new generation user modeling - 1  
 Type: Tutorial  
 Track: UMAP2011  
 12 attending >>
- 2011-07-11 11:30-13:00 Auditorium  
**Designing and evaluating new generation user modeling**  
 Tutorial - Designing and evaluating new generation user modeling - 2  
 Type: Tutorial  
 Track: UMAP2011  
 12 attending >>
- 2011-07-11 17:50-18:15 Pati  
**Exploring the Effects of Feed-forward and Feedback on Information Disclosure and User Experience in a Context-Aware Recommender System**  
 Workshop - DEMRA: Decision Making and Recommendation Acceptance Issues in Recommender Systems

**Connections (6)**  
 Chirayu Wongchokprasitti Jinq Li Peter Brusilovsky Shaghayegh Sahebi (Sherry) Shaopeng Zhang Sriranjani

**Connection Request (3)**  
 Jianyue Zhu denisTest3 D.Parra

**tags (83)**  
 user-model e-learning recommender keynote tagging social-network analysis personalization user-profile eye-tracking context search cross-tagging folksonomy visualization implicit recommender-systems

Figure 15: My CN3 page, presented scheduled talks, connections, recommended connections and tags.

**Checking other users' profile(user.php)**

In a similar way as My CN3, the users can see the talks scheduled by other users, basic information of their profile and their connections. There are, thought, two distinctive features compared to checking their own profile: a) User can block their profile to be viewed by other users (in the Edit Profile page), and b) a user that sees other user's profile can follow it and request a connection, that can be accepted or rejected by the other user. These features can be seen in Figure 16. Other interesting feature in this page is that CN3 shows a label on those talks that have been c-scheduled.

**Alan Said** [Follow Alan Said](#) [Waiting confirmation](#)  
 Position/Affiliation: at TU-Berlin  
 Website: <http://alansaid.com>  
 LinkedIn: [Public Profile at LinkedIn](#)

**Schedule**

- 2011-07-11 15:00-16:30 [Add to my schedule](#)  
**Personalization, persuasion, and everything in-between**  
 Tutorial - Personalization, persuasion, and everything in-between - 1  
 Type: Tutorial  
 Track: UMAP2011  
 12 attending >>
- 2011-07-11 17:00-18:30 [Add to my schedule](#)  
**Personalization, persuasion, and everything in-between**  
 Tutorial - Personalization, persuasion, and everything in-between - 2  
 Type: Tutorial  
 Track: UMAP2011  
 12 attending >>
- 2011-07-12 09:30-11:00 [In your schedule](#) [Cancel](#)  
**Opening Keynote**  
 Invited Talk: Ricardo Baeza-Yates  
 Type: Invited Talk  
 Track: UMAP2011  
 38 attending >>

**Connections (2)**  
 Gudrun Kellner Rikki Prince

**Tags (3)**  
 personalization context recsys

Figure 16: The profile page of other user in CN3.

### ***Edit user profile (EditProfile.php)***

In the top menu, which is not dependent on the conference, it is located a link to the Edit Profile page. The Edit profile page allows the user to modify privacy information (profile visibility, comment visibility, mass emails and user connection request notification), personal information (email, name, position, department, organization, city, country, and website), and information from external services that are useful to provide talks and paper recommendations in CN3 (facebook, linkedIn, citeulike, bibsonomy, mendeley)

The screenshot displays the 'Edit Profile' page with three main sections:

- Privacy Settings:** A section titled 'Set your Privacy Settings' with a dropdown arrow. It contains four dropdown menus: 'profile visibility' (set to 'Everyone'), 'comment visibility' (set to 'Everyone'), 'mass email' (set to 'Do not send me system updates and feature information'), and 'connection email' (set to 'Notify me when other users adds me as connection'). An 'Update' button is located at the bottom right of this section.
- Personal Information:** A section titled 'Personal Information' with several input fields: 'Email\*' (denisparra@gmail.com), 'Name\*' (Denis Parra), 'Position:' (empty), 'Department:' (School of Information Sciences), 'Organization:' (University of Pitt), 'City\*' (Pittsburgh), 'Country\*' (USA), and 'Website:' (www.sis.pitt.edu/~dparra). A label 'Your personal website or blog.' is positioned above the website field.
- Social Media Integration:** A section titled 'Username for other online sites or services.' containing two fields: 'Facebook:' with a 'Log In' button and 'Linkedin:' with a 'Sign in with LinkedIn' button.

Figure 17: Edit Profile page with sections to edit different profile options.

### ***Recommended (recommendations3.php)***

Recommendations are a key functionality in CN3 in order to encourage users to authenticate in the system, since they will perceive a value in providing personal information and using the system. The recommendations page has three tabs, providing content-based and tag-based recommendation of talks, and social-based recommendation of CN3 users. Cn3 allows the user to provide feedback and also to rate the recommendations provided, as observed in Figure 18.

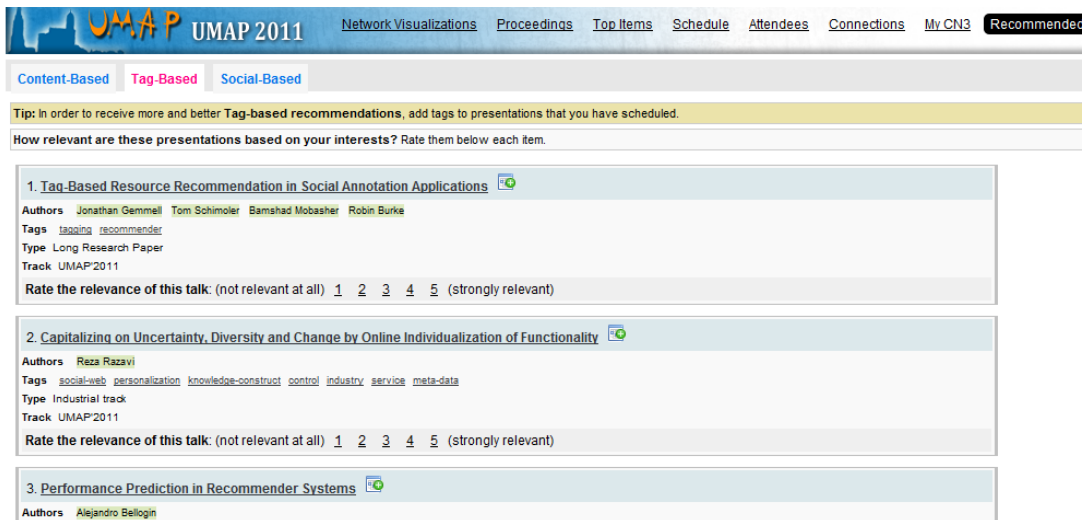


Figure 18: Recommended page. It provides recommendations of talks and users.

**Connections (connections.php)**

This page allows the user to see a summary of her connections (current and pending requests) in CN3, but also allows the user to identify people that are existent contacts in other services (such as facebook or linkedIn) that exist as users in CN3 and that they can connect inside the system. The main problem with this page relies on the lack of value that users perceive to connect with others inside cn3, and also some problems with the network visualization functionality that most of the time is broken. Figure 19 provides a screenshot of this page.

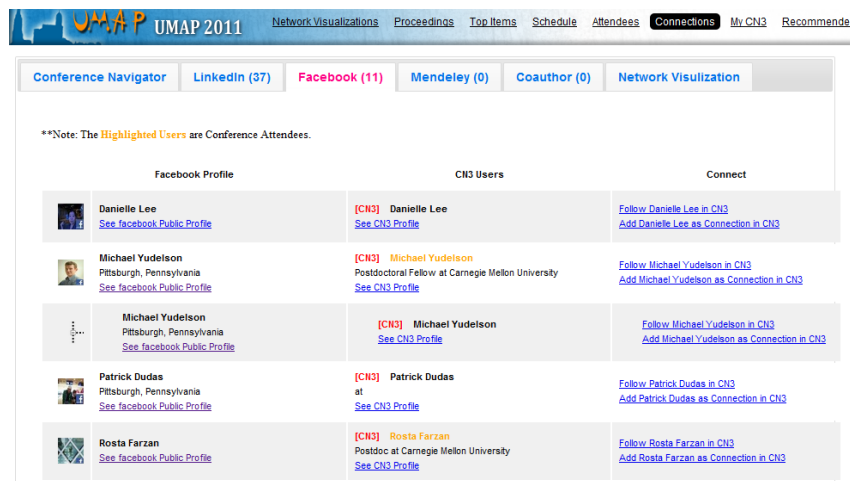


Figure 19: Connections page, presenting a list of contacts from facebook that match users in CN3.

**Attendees list (getAttendee.php)**

The Attendees list page, Figure 20, is available for authenticated users that have been confirmed by the conference organizers as real assistants to the conference. On this way, we protect the privacy of users

but we also help them creating their contact network, which is one of the most important activities in conferences.

\* This list is visible to the conference attendees only

Name	Affiliation	Position	# scheduled papers	Personal website
Aaron Guigley	University of St Andrews		0	
Adam Moore	Trinity College, Dublin		20	
Adriana Berlanga	Open Universiteit		11	
Alan Said	TU-Berlin		19	<a href="http://alansaid.com">http://alansaid.com</a>
Alberto Manuel	Process Sphere		4	<a href="http://www.process-sphere.pt/">http://www.process-sphere.pt/</a>
Alejandro Belloin	Universidad Autonoma de Madrid	PhD Student	19	<a href="http://aranba.uam.es/~abelloin/">http://aranba.uam.es/~abelloin/</a>
Alessandro Micarelli	Roma Tre University		10	
Alexandros Paramythias			0	<a href="http://www.fim.uni-linz.ac.at/staff/paramythias/">http://www.fim.uni-linz.ac.at/staff/paramythias/</a>
Angel Conde	Universidad del País Vasco/Euskal Herriko Unibertsitatea		0	<a href="http://galan.ehu.es/Galan/">http://galan.ehu.es/Galan/</a>
Anthony Jameson	DFKI		0	<a href="http://dfki.de/~jameson">http://dfki.de/~jameson</a>
Antonina Dattolo	University of Udine		23	
Bamshad Mobasher	DePaul University		23	
Bart Knijnenburg	University of California, Irvine		12	<a href="http://www.usabart.nl">http://www.usabart.nl</a>
Brian Duffy	Carney, Inc.		0	
Catherine Mulwa	Trinity College Dublin	PhD Candidate	4	<a href="http://www.scss.tcd.ie/~mulwac/">http://www.scss.tcd.ie/~mulwac/</a>
Cecile Paris	CSIRO		0	<a href="http://www.ict.csiro.au/staff/Cecile.Paris">http://www.ict.csiro.au/staff/Cecile.Paris</a>

Figure 20: Attendees list page. It provides different information of users and sorting functionality.

## Backend CN3 functionality

### Tracking/logging

CN3 tracks user actions in the table logging. We aim to use this information in order to identify patterns that lead the user to do some actions, to do debugging and to identify attacks to the system. This feature is in constant update since adding new devices (iPhone and Android applications) and new functionality leads to more complex scenarios that might be recorded to be analyzed.

### Crawlers

In order to enhance the recommendation of papers and talks, we have a set of crawlers scraping information from the internet. Although effective, we haven't studied deeply the effect of performance of these crawlers in the overall service.

### Recommendation Algorithms

The recommended page requires recommendation algorithms to execute several off-line calculations, some of them computing intensive. TF-IDF scores of each document, similarity calculations, between other actions make the system more complex than just a simple 3-layer architectural framework. We have not studied the impact in performance of these off-line calculations, neither ways to explain the user how many talks they have to schedule in order to start receiving recommendations.

### Running User studies in CN3

Recently we have created two tables in the Db (userstudy and userstudylist) in order to provide an initial framework to run user surveys and other related studies among CN3 users. By have the IRB approval but, but with the exception of a network visualization study in the context of other project, we still haven't prove this functionality.

## Current Issues and Prospective Features

- **Performance and Scalability:** this is a key issue in CN3. Several factors may affect the performance of the system: server-based (DB design and configuration, Web server configurations), client-based (javascript and HTML), and network-based (hosting and network management). We need to design and apply systematic tests in order to identify and solve these issues, especially when users are making a heavy use of the systems during the conference.
- **User engagement:** How to make the user more willing to log in into the system?
  - **Hiding features for non-authenticated users:** Analysis that we have done on patterns of actions that users follow when using the system show that they tend to explore the system without considering logging into it. As a team, we have discussed several idea to encourage the user logging in into Cn3 and we have identified two: a) Hide the list of users that have bookmarked a talk in top.php; and b) Hide the list of users that have bookmarked a talk in presentation2.php. In both aforementioned cases, we will replace the list users by a message indicating to the user “to see the list of users that have schedule this talk, you need to log in into the system”.
  - **Provide list of authors:** Some users have suggested that in some conferences, people choose to watch some author and then they care about the title or other people who may go to the talk. Under this model, it makes sense to provide a list of authors of the conference with links that lead to the paper or papers that they are presenting in a conference.
- **Outlook: Features to enhance CN3**
  - **Add landing page to each conference:** This is an important feature, since currently the users go directly to the proceedings, top page or program of the conference, but they don't have the chance to
  - **Allow users to upload content related to their articles/talks:** in many cases, users would like to share their presentations by uploading the file or by providing a link.
  - **Logging/tracking of user actions:** after an attempt t to study the behavior of users in the system some caveats in the current logging functionality that prevents us from identifying the user actions from the system actions in several records. Moreover, there is inconsistency of the records tracked from the web interface compared to the iPhone and Android applications
  - **Disable or enable features for user studies:** In order to turn CN3 into a research-driven platform, we should be able to turn off and on some features for groups of users in a systematic way. This will allow simple experiments such as AB testing to more complex scenarios to understand mechanisms that lead users to certain actions patterns.