

# **CoMeT**

## **Collaborative Management of Talks System Modification & Improvement**

**INFSCI 2950 – INDEPENDENT STUDY**

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## Part 1. Introduction to Collaborative Management of Talks

Collaborative Management of Talks, also known as CoMeT, is an adaptive web system on which stores and presents collaborations of academic studies, researches, talks and seminars.

With user personalization and collaborative filtering techniques, the system helps managing as well as recommending new released talks or seminars with a wide range of academic fields and areas. It stores information of a user, either attendees or professional presenters/hosts such as professors or researchers in the related field. All the talks and seminars are categorized as and targeted to the most related clusters of personals. Each user would grant his own privilege as the system builds up his personal profile, so in later usage he would have his own personal recommendation on of talks that related to his own study. The system also provide group options to make recommendation to a set of people, who are strongly related to the topic of target talks.

## Part 2. Technical Details

### Development Environment and Techniques:

1. Database: MySQL
2. Backend Language: Java
3. Framework: Struts & Hibernate
4. Other Techniques: Java Mail Service

## Part 3. System Glimpse

### 1) User Registration and Login

Although on default the system opens for the guest, user still needs to register and login to get the best experience with the adaptive aspects. The system provides common registration flow to allow users to be registered in the system and use the service properly.



### Collaborative Management of Talks

Bookmark Talks, Share with Friends, and We Recommend More!

#### Signup

Screen Name:

E-Mail Address:

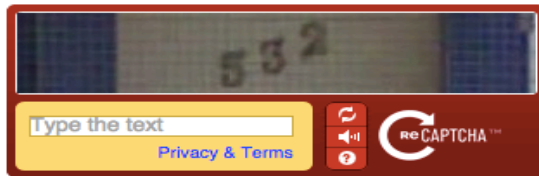
Choose a Password:

Re-enter Password:

Network Affiliates:


- University of Pittsburgh [Show children](#)
- Carnegie Mellon University [Show children](#)
- RAND
- Chatham University
- CCAC-Allegheny Campus



[Register](#)

[Sign in?](#)

G.01 Registration Interface

The system then will store user's information in the database, thus user could access the site normally

```

1 • SELECT * FROM colloquia.userinfo;
    
```

user_id	name	email	pass	role_id	lastupdate	ispilot	isbeingupdated	isrequest
2	peterb	peterb@pitt.edu	XM/OpO4GAvA=	2	2009-08-27 2...	1	1	1
3	Julian	pjlee1215@gm...	VzGEXx9IIWs=	1	2009-09-01 1...	0	0	0
4	Nathalie Bara...	nab62@pitt.edu	ztpdkeEznOvl...	1	2009-09-01 2...	0	0	0
5	myudelson	myudelson@g...	/cBdW89tOQ...	1	2009-09-02 0...	1	0	0
6	dudaspm	pmd18@pitt.edu	FR2IWBapvSy...	1	2009-09-02 0...	0	0	0
7	jinlei	jinlei09@gmai...	odDT02J4Jtl=	1	2009-09-02 1...	0	0	0
8	Vamshi	vamshi@cmu.edu	WVEbtB9WoqE=	1	2009-09-02 1...	0	0	0
9	Denis Parra-S...	dalpasa@yaho...	m9wNq09Yb...	1	2009-09-02 1...	1	0	0
10	James	shc56@pitt.edu	48hnacot3g8=	1	2009-09-02 2...	0	0	0
11	Sherry	shs106@pitt.edu	UdR5SRDq8x...	1	2009-09-04 0...	1	0	0
12	wab23	wab23@pitt.edu	xdCJ0MZWQ...	1	2009-09-04 0...	0	0	0
13	Mahsa Ghafou...	mag158@pitt.edu	Y7Uwvo7G6e...	1	2009-09-08 1...	0	0	0
14	Sharon	shoha99@gm...	sVZqDNFDW1l=	1	2009-09-09 0...	1	0	0
15	ZhengMa	zhm5@pitt.edu	e+OHwmabJ1...	1	2009-09-10 0...	0	0	0
17	Titus Schleyer	titus@pitt.edu	Vq0I8PhJVl4=	1	2009-09-12 1...	0	0	0
19	Kelly S	kshaffer@sis.p...	vvHX945Km7...	1	2009-09-14 1...	0	0	0
20	walkmanhua	walkmanhua@...	QCojVP9gxAL...	1	2009-09-15 1...	0	0	0
21	Rosta	rosta@gmail....	5As/WeHp0XY=	1	2009-09-16 1...	1	0	0
22	tgulish	tgulish@cmu.edu	YC1ANOT1+Q...	1	2009-09-23 2...	0	0	0
23	badolina	idoroll@gmail....	OIL6BIBMVeI=	1	2009-09-30 1...	0	0	0

G.02 Registration Database

## 2) Talk management board and filtering mechanism on user's search activities

Login or not, user can browse and select talks and seminars in the talk management page, which is assembled from a calendar, a side bar presenting research areas and the content list based on the selection from the sidebar, where an adaptive recommendation algorithm is applied for each personal profile. Based on the recommendation and the date, the content division will present talks and seminars that most fit the users need on a time basis.

**CoMeT Collaborative Management of Talks**  
 Bookmark Talks, Share with Friends, and We Recommend More!  
 Hello! [sign in](#) or [register](#)

ALL  Search Advanced Search [Post New Talk](#)

Home **Calendar** Series Speaker Groups Connections My Account

« Day **Week** Month »

Interest Area: [Arts and Humanities](#)

Week 5 of March: 29 - April 4, 2015

**Monday, Mar 30**

**16** views **Neither Here Nor There**  
 By: [Rita Duffy](#), NA at: 4:30 AM - 6:00 PM  
 Location: **Porter Hall 100**  
 Series: [Carnegie Mellon University Lecture Series \(ULS\)](#)

**Wednesday, Apr 01**

**8** views **War, Grief and Rage: Popular Commemorations of the Maidan**  
 By: [Catherine Wanner](#), History and Cultural Anthropology, The Pennsylvania State University at: 3:00 PM - 5:00 PM  
 Location: **Alcoa Room, Barco Law Building**  
 Series: [Center for Russian and East European Studies Lectures](#)

**36** views **DESIGNING FOR SYSTEMS CHANGE: THE ROLE OF EMBEDDED ALLIES IN BATTLING COMPLEX, "WICKED" PROBLEMS**  
 By: [Cheryl Dahle](#), Future of Fish at: 5:00 PM - 6:30 PM  
 Location: **Carnegie Museum of Art**  
 Series: [School of Design Lecture Series](#)

**Thursday, Apr 02**

**6** views **Paul Hammond Memorial Lecture: A Dangerous Nuclear Future: Weapons, Energy, and Risk**  
 By: [Scott Sagan](#), Stanford Universit at: 1:30 PM - 2:30 PM  
 Location: **Ballroom B of the University Club**  
 Series: [Matthew B. Ridgway Center for International Security Studies Events](#)

March 2015  
 S M T W T F S W  
 1 2 3 4 5 6 7 W1  
 8 9 10 11 12 13 14 W2  
 15 16 17 18 19 20 21 W3  
 22 23 24 25 26 27 28 W4  
 29 30 31 1 2 3 4 W5  
 1 - 5 6 - 10 11 - 20 21+

Feed  
 RSS ATOM KCAL  
 Add to Google Calendar

**Related Interest Areas**  
 General Interests (2)  
 Social, Behavioral & Economic Sciences (3)

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### G.03 Presentation of Talk Management

## 3) Talk post and approval mechanism

On default any user could post talk and/or seminar information on CoMeT. A post request would go through another application outside the system --- TalkExtract, where the contents is viewed and examined by the administrators, who will have the final decision on the subject of whether it would be posted or not. The administrator could also grant a user the permanent access to the system so he could post and edit the talks freely.

**Collaborative Management of Talks**  
 Bookmark Talks, Share with Friends, and We Recommend More!

Welcome ScarVaapad [Log out](#)  
[Friend Request](#)  
[Post New Talk](#)

ALL Search Advanced Search

Home Calendar Series Speaker Groups Connections My Account

**Post Talk**

Title \* :

Speaker \* :  
 Name \* :  Affiliation \* :  [Add](#)

[Not this Person?](#)

Person hosting a talk:

Series:  [Add](#)

Sponsor:  [Add](#)

Date(month/date/year) \* :

Begin Time \* :

End Time \* :

URL:

Location \* :

Video URL:

Slide URL:

Paper URL:

Detail \* :

[Source](#)

**B I S Ix** Styles Normal ?

G.04 Posting Talks

The information of talks and user privilege would then be stored in the database for future queries.

user_id	name	email	writable
1	chirayu	chirayu.kong@...	1
2	peterb	peterb@pitt.edu	1
3	Julian	pjee1215@gm...	1
4	Nathalie Bara...	nab62@pitt.edu	1
5	myudelson	myudelson@g...	1
6	dudaspm	pmd18@pitt.edu	1
7	jinlei	jinlei09@gmail...	1
8	Vamshi	vamshi@cmu.edu	1
9	Denis Parra-S...	dalpasa@yaho...	1
10	James	shc56@pitt.edu	1
11	Sherry	shs106@pitt.edu	1
12	wab23	wab23@pitt.edu	1
13	Mahsa Ghafou...	mag158@pitt.edu	1
14	Sharon	shoha99@gm...	0

userinfo 3 [Apply](#) [Revert](#)

G.05 User Storage and Privileges

col_id	_date	begintime	endtime	location	detail	lastupdate	title	user_id	speak
6	2008-12-11 0...	2008-12-11 1...	2008-12-11 1...	6329 - Board...	<p>	2013-02-19 0...	MITIGATION...	2	17
7	2008-12-05 0...	2008-12-05 1...	2008-12-05 1...	704 Thackera...	ABSTRACT: Q...	2008-12-04 1...	An Invitation t...	1	18
8	2008-12-04 0...	2008-12-04 1...	2008-12-04 1...	704 Thackera...	<p>	2011-06-08 1...	Estimating Ho...	2	19
9	2010-04-05 0...	2010-04-05 1...	2010-04-05 1...	Breed Hall (M...	<p>	2013-01-25 1...	Games About...	2	4353
10	2008-12-05 0...	2008-12-05 1...	2008-12-05 1...	6220 Wean Ha...	<p>	2009-11-10 1...	Stochastic par...	2	21
11	2008-12-05 0...	2008-12-05 1...	2008-12-05 1...	6423 Wean Ha...	Abstract	2008-12-04 1...	On asymptotic...	1	22
12	2008-12-08 0...	2008-12-08 1...	2008-12-08 1...	6423 Wean Ha...	<p>	2009-11-13 1...	Portfolios and...	1	366
13	2008-12-05 0...	2008-12-05 1...	2008-12-05 1...	Newell-Simon...	<p>	2013-02-19 0...	A System of H...	2	217
14	2008-12-04 0...	2008-12-04 1...	2008-12-04 1...	4625 Wean Ha...	<p>	2009-11-23 2...	Tools and Alg...	1	391
15	2008-12-04 0...	2008-12-04 1...	2008-12-04 1...	5320 Wean Ha...	ACO Seminar	2008-12-04 1...	Counting mat...	1	26
16	2008-12-05 0...	2008-12-05 1...	2008-12-05 1...	Newell-Simon...	<p>	2009-11-18 1...	Exploiting do...	1	378
17	2008-12-05 0...	2008-12-05 1...	2008-12-05 1...	200 Lothrop S...	Abstract:	2008-12-04 1...	Systematic an...	1	28
18	2009-01-16 0...	2009-01-16 1...	2009-01-16 1...	Room 501 of t...	<p>	2009-11-13 1...	Picturing Pitts...	1	368
19	2009-01-30 0...	2009-01-30 1...	2009-01-30 1...	Room 501 of t...	<h3>Seeing...	2009-01-21 0...	Seeing Pittsbu...	1	30
20	2009-02-25 0...	2009-02-25 1...	2009-02-25 1...	Room 501 of t...	<h3>Martin A...	2009-01-16 2...	The Spectator...	1	31
21	2009-02-11 0...	2009-02-11 1...	2009-02-11 1...	Room 501 of t...	<h3>	2010-03-12 1...	Presidential Li...	2	616
22	2009-11-17 0...	2009-11-17 1...	2009-11-17 1...	Room 501, IS...	<p>	2009-11-10 1...	Children as D...	2	34
23	2009-09-01 0...	2009-09-01 1...	2009-09-01 1...	SENSQ 5317	<h3> Abstract...	2009-09-08 0...	A Real-Time D...	1	35
24	2009-10-02 0...	2009-10-02 1...	2009-10-02 1...	GHC 4303	Enabling mac...	2009-09-26 1...	Making Machl...	2	225
25	2009-10-13 0...	2009-10-13 1...	2009-10-13 1...	TBA	TBA	2009-09-08 0...	Virtual Probe...	1	37
26	2009-10-27 0...	2009-10-27 1...	2009-10-27 1...	TBD	<p>	2009-10-27 2...	Test Effectiven...	1	38
27	2009-11-17 0...	2009-11-17 1...	2009-11-17 1...	N/A	N/A	2009-09-08 1...	Designing Net...	1	39
28	2009-12-01 0...	2009-12-01 1...	2009-12-01 1...	TBA	TBA	2009-09-08 1...	On the Mitgat...	1	40

G.06 Talk information storage


## Part 4. System Improvements

- **Email Verification for Registration Process**

While users could register freely at the website, there is a high chance that untrusted users will violate the good intention of the website has to offer and make post junk information such as adds. This will create inconvenient user experience and burden the administrator for unnecessary check and approve operations.

To reduce such unexpected users and their behaviors, one important update is to add an email-verification mechanism. This is helpful because observations on action patterns of spam users suggest that spam users, whose goal is to distribute junk information, would normally use fake email addresses, which receive no email verifications for a proper registration.

Using Java mail service, we created a procedure for each registering user, who would immediately receive an email in his registration email box. By clicking the link provided, this user would be able to redirect back to the CoMeT main page, and finish the registration process.



**Collaborative Management of Talks**  
Bookmark Talks, Share with Friends, and We Recommend More!

ALL   Advanced Search


**Home** | Calendar | Series | Speaker | Groups | Conne

Welcome to the CoMeT System!

Just one more step before your account fully setup!

An email has been sent to you for your verification, please check it out


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### G.07 Email Verification Request from CoMeT

CoMeT: Verifying your new CoMeT Account 收件箱 x

---

 **comet.paws@gmail.com** 1:23 (0分钟前) ☆ ↶ ↷

发送至 我

Dear Yet Another Intern,


Welcome to join the CoMeT system!

Just one more step then you are ready to go!

Now we need you please click on this following URL or copy it to the browser to complete the verification process:  
<http://halley.exp.sis.pitt.edu/comet/verifyemail.do?h=1673803967>

The CoMeT Team

### G.08 User receiving request in their email



**Collaborative Management of Talks**  
Bookmark Talks, Share with Friends, and We Recommend More!


ALL   Advanced Search

**Home** | Calendar | Series | Speaker | Groups | Conne

Congratulations, Yet Another Intern! Your account has been successfully set up!

[Click here to login](#)

[CoMeT Blog](#)  
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### G.09 Verification Complete

- **Privilege Increment Mechanism**

Originally, every talk and seminar should go through the TalkExtract, the supervisor of CoMeT system. By checking all posts manually, the TalkExtract would approve certain talks and seminars to officially post to the site. This process involve with storing post information in a shadow database, and transferring the right ones into the true database after TalkExtract's approval. TalkExtract could also grant user privileges so a recognized user could automatically have his post to the site without censor.

But still, this process requires a lot of inspections on all the talks and manual approval for users. To make it more convenient to use, we are trying to implement a self-increment mechanism for user privileges. The original idea is that, one user's posts would gain this user a weight in the system, which would allow his post information directly go to the true database once his weight meet with the standards. To initialize this idea, we put a simple idea that grants user such privilege if he gets any one post approved from TalkExtract. This turned out to be fine in practice since there are lots of post requests clustering among some certain professors and organizations, this also increase the efficiency of approval work.

user_id	name	email	writable
1	chirayu	chirayu.kong@...	1
2	peterb	peterb@pitt.edu	1
3	Julian	pjee1215@gm...	1
4	Nathalie Bara...	nab62@pitt.edu	1
5	myudelson	myudelson@g...	1
6	dudaspm	pmd18@pitt.edu	1
7	jinlei	jinlei09@gmail...	1
8	Vamshi	vamshi@cmu.edu	1
9	Denis Parra-S...	dalpassa@yaho...	1
10	James	shc56@pitt.edu	1
11	Sherry	shs106@pitt.edu	1
12	wab23	wab23@pitt.edu	1
13	Mahsa Ghafou...	mag158@pitt.edu	1
14	Sharon	shoha99@gm...	0

**G.10** With writable equals to 1, user got posts directly stored to the formal database

Due to practical usage of the system, we didn't further develop the algorithm for the self-increment, which we believe, would become truly useful for a target customer in a more magnificent number than what we have right now, where users are categorize in all different areas and distributed in all fields. (Right now the main users are from certain areas like Computer Science and Information Science, where professors and talkers are relatively solid and stable).

Also, this mechanism improve the user experience because of a more efficient presentation of posts, which create good faith among trusted users, while blocking the bad user from abusing it.



• **Categorized User Recommendation**

The original start page of CoMeT generates an excellent recommendation list of talks for users to choose and bookmark. The sidebar under the calendar lists wide variety of research areas that talks or seminars belong to, so by clicking those areas, users could gain more precise recommendations for his personal interest, according to the recommendation algorithm applied to their search.

The screenshot shows the CoMeT interface for Friday, April 10, 2015. At the top, there are navigation buttons for Day, Week, and Month. Below the date, a list of talks is displayed, each with a view count, title, speaker, location, and time. The talks include:

- Thesis Oral: Searching... A Cultural History of Twentieth-Century Information Retrieval** by David Haeselin, English, Carnegie Mellon, at 10:00 AM - 12:00 PM, Location: Baker Hall 255 B, Swank Room (2 views).
- An Introduction to Omeka** by Nora Mattem, Visiting Assistant Professor, School of Information Sciences, and Postdoctoral Researcher, University Library System, at 10:00 AM - 12:00 PM, Location: Hillman Library, Ground Floor? Amy E. Knapp Room (3 views).
- TBA** by JoAnna L. Hillman, MPH, Doctoral Fellow, University of Pittsburgh, at 11:00 AM - 11:30 AM, Location: 407A/B BAUM, 5607 Baum Blvd. (3 views).
- TBA** by Adam Roth, BS, Masters Fellow, University of Pittsburgh, at 11:30 AM - 12:00 PM, Location: 407A/B BAUM, 5607 Baum Blvd. (4 views).
- TBA** by Adam Handen, BS, MS, Doctoral Fellow, University of Pittsburgh, at 11:30 AM - 12:00 PM, Location: 407A/B BAUM, 5607 Baum Blvd. (5 views).
- Recommending Remedial Learning Materials to the Students by Filling their Knowledge Gaps** by Alexander Tuzhilin, Stern School of Business, NYU, at 12:00 PM - 1:30 PM, Location: Posner Hall Room 388 (1 bookmark, 5 views).
- First evidence for Vector-boson fusion H?WW\*** by Phillip Chang, University of Illinois Urbana-Champaign, at 12:30 PM - 2:00 PM, Location: 419 Allen Hall (1 view).

On the right side, there is a calendar for April 2015, a feed section with RSS, iCal, and Add to Google Calendar options, and an interest areas sidebar listing categories like Arts and Humanities (3), Biological Sciences (4), Computer & Information Science & Engineering (8), Education (1), General Interests (1), Health Sciences (4), Mathematical & Physical Sciences (2), Social, Behavioral & Economic Sciences (1).

G.11 Categorized research area before modification

Applying more rules to the original categorization, we implement a set of new conditions for talk recommendation, and now user could make the search of topics based on not just research area, but also based on location, speaker, whether it is bookmarked by the users or whether it belongs to certain group this user is in. This definitely improve the personalized search results for the vast users, because the tags would offer much more custom filters for user to get the wanted target in a faster pace.

<b>20</b> views	<p><a href="#">Symmetric tensor networks --- practical simulation algorithms to sharply identify classes of quantum phases distinguishable by short-range physics</a></p> <p>By: <a href="#">Prof. Ying Ran</a>, Boston College at: 4:30 PM - 5:30 PM</p> <p>Location: Wean Hall 7316, CMU</p> <p>Series: <a href="#">Condensed Matter Physics Seminar</a></p>	<p><b>Research Areas</b></p> <p>Arts and Humanities (1)</p> <p>Computer &amp; Information Science &amp; Engineering (2)</p> <p>General Interests (1)</p> <p>Health Sciences (1)</p> <p>Mathematical &amp; Physical Sciences (1)</p> <p>Social, Behavioral &amp; Economic Sciences (2)</p> <p>Unclassified (1)</p> <p><b>Sponsors</b></p> <p>Carnegie Mellon University (2)</p> <p>University of Pittsburgh (4)</p> <p><b>Hosts</b></p> <p>(1)</p> <p>Christopher Langmead (1)</p> <p>Kevin Ashley (1)</p> <p>Unknown (2)</p> <p><b>groups</b></p> <p>Information Retrieval (1)</p> <p>Information Science (1)</p> <p>N/A (4)</p> <p><b>serieses</b></p> <p>Condensed Matter Physics Seminar (1)</p> <p>Matthew B. Ridgway Center for International Security Studies Events (1)</p> <p>N/A (3)</p> <p><b>Location</b></p> <p>Unknown (5)</p> <p><b>speakers</b></p> <p>Jamie Callan (1)</p> <p>MARINA BARSKY (1)</p> <p>Peter Hessler (1)</p>
<b>41</b> views	<p><a href="#">Film screening and panel discussion: "The Decade of Discovery"</a></p> <p>By: <a href="#">Jamie Callan</a>, Carnegie Mellon University Language Technologies Institute, School of Computer Science at: 6:00 PM - 8:00 PM</p> <p>Location: Reception at Alcoa Room of the University of Pittsburgh School of Law (2nd floor); screening in Room 111 (1st floor) of the School of Law; 3900 Forbes Avenue, Pittsburgh, PA 15260</p>	
<b>37</b> views	<p><a href="#">Pittsburgh Contemporary Writers' Series: Peter Hessler</a></p> <p>By: <a href="#">Peter Hessler</a>, 2014/15 William Block Sr. Award Winner at: 8:30 PM - 9:30 PM</p> <p>Location: Frick Fine Arts Auditorium</p>	

G.12 More tags for precise locating on subjects, after modification

## Part 5. Limitation and Future Works

Although much have done for the improvement of the CoMeT System, there are certain restrains of the system, and a lot of future work will be needed if a even better outcome is planned to be reached.

- a) The user privilege increment mechanism still has space for improvement. Since right now we had a brutal way of deciding a user's privilege to access the system, there is always better algorithm for a proper increase of the level of privilege for each user. This however would require that the users are evenly scattered among different academic area. This would definitely become a crucial issue if CoMeT would like to expand for more users.
- b) Although more recommendation options are added to the sidebar to provide better search result, this feature is not officially move to the released version. This is because of a small bug in the presentation of sidebar – the sidebar fails to respond the tag control of time (month tag), and the sidebar is showing wrong numbers even though the result list is giving the right contents. This would require a fix in the presentation layer.
- c) The code itself is not quite clear for maintenance purpose. Although giving promised results in practice use, the code itself has some chaotic factors for maintenance --- firstly, the code used a random insertion of JAVA code in the jsp files, which truly violate the idea of MVC presentation of a web project. With the model and view layers mixed up it is hard to initialize a proper

debug procedure. Secondly, the system seems lack of a good documentation for introducing models, workflows and database relationships. This would give any new comer a hard time to adjust to the system. Last but not least, the system is still using Tomcat 5.5 and 6 which are no long supported in updates. An immigration might be necessary for future development and maintenance