Online digital libraries exist for a long time, offering works in a large number of domains. A lot of work has been done to enrich the functionality of such systems: citations, research genealogy, keyword search and a lot more.

Our idea is to fuse social network and such digital library and introduce not only usual social network features, but a possibility to discuss papers.

Also, a scientist’s notebook for keeping ideas and reviews privately was done.

The proposed system offers a type system over comments which can lead to an interesting queries:

- What did a scientist X think about problem Y?
- What are the most active research topics in the domain of X?
- What are the most disputed papers?
- A lot more of simple (but still useful) queries which can be answered by our system.

### Social Part

The well known social network features which become a standard de-facto:

1) Personal profiles
2) Groups or communities
3) Personal messaging
4) Privacy mechanisms – the problem is to integrate access of many people from the same institutional login (additional authorization)

### Paper Information Management Part

**Private Notes**

**Public comments**

**Types of comments:**

- Inconsistency or contradiction – this type of comment is applicable when the fact stated or used in the paper contradicts to your opinion, or to opinion of others. In this case a Linked Paper field might come in handy.
- A question – is different from the latter. This is a merely a clarification request. Very useful when bound to Text Anchor.
- Answer – an answer to both of these two previous question types.
- Support – a type of comment to indicate that you agree to the information provided. It can be backed up with a Linked Paper.
- Non-related comment is given to all other possible types.

### Future Work

**Short-Term**

1) Automatic fill-in of comment forms
2) Proper additional markup of papers
3) Simple profile Content-Based recommender
4) Mixing-up results of provided API search and constructed search engine

**Long-Term**

1) Entity disambiguation
2) Complex Collaborative Filtering Recommender
3) Privacy issues: privacy preserving groups, etc

**A Really Long Way**

1) Flash-based Collaborative paper edition tools
2) Automatic formatter to different journal formats
3) From groups to conference registration and review systems

And a lot more!

Try decoupled demo at: http://adm2.math.spbu.ru:84/springapp/Login.html

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**Related Work**

ACM Digital Library author profiles (beta): a comparison

**Strong points:**

- More oriented on static profiles
- Entity disambiguation works
- Affiliation history (ordered)
- Complex bibliometrics features
- More content: photos, awards
- Still beta, probably more to come

**Benefits of our approach:**

- Live discussions in context of paper content
- Complex queries to comments, opinion mining
- Scientist’s notepad
- Communities and personal mail
- Promotion of inter-domain collaboration

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**Architecture and Implementation Details**

**Database**

MySQL

1) Java Servlets: Spring (MVC+Security) and JSP
2) Tomcat Web Container

1) JavaScript: jQuery and jQueryUI
2) AJAX

**Technical**

Cross-Site Scripting

**Architectural Issues**

1) Performance issues: currently a toy examples
2) Privacy issues

**Scientific**

Anchor Domain Operations

Operations on text anchors: resize, merge and security problems

Combining Results of Search Engines

How can we distinguish differently spelled names, for example to notify author of comments?

This is a well-known problem and a lot of approaches exist

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**Major Problems**

- Database
- Combining results of Search engines
- And a lot more!