
Completed Research

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Abstract

The purpose of this paper is to present a recommendation system that can easily and conveniently assist collaboration seekers in finding high-level subject experts for research projects. We will accomplish this task by providing a recommender system known as the Collaboration Mapping System (CMS). The CMS maps potential collaborators with each other based on specified criteria. Due to the difficulties in finding research collaborators and the often-accidental nature of finding collaborators, it is important for university research communities to have tools to make the process more efficient and easier. This research is important for academicians and students alike because it will aid them in finding others who desire to pursue research projects that they would otherwise not be able to pursue, due to lack of knowledge and expertise.

Keywords

Collaboration, Research, Mutual Interest, Knowledge Mapping

Introduction

For decades multiple authorship publications, also referred to as co-authorship publications, have been on trend in the research community. Today, now more than ever, this is true due to the complexity of research, and consequently, the need for diverse skill sets and knowledge. The most critical scientific problems often require teams of multiple researchers from the same discipline or different disciplines to collaborate and make a significant impact on society (Lustig et al., 2015; Bruns, 2013). Collaboration is appropriate for tasks requiring different types of knowledge not developed by a single author alone (Bruns, 2013). Additionally, collaboration enables researchers to achieve significant benefits by acquiring knowledge, expertise, ideas and otherwise unattainable resources in a timely manner (Adams, 2012). Collaboration can be either within the discipline or interdisciplinary (Katz, 1999). Moreover, collaborations may occur naturally or accidentally, i.e., without intention or by happenstance.

Factors, such as project characteristics, researchers’ needs and goals, disciplinary norms, institutional constraints, and organizational policies often shape research collaborations. In academia, while researchers have significant freedom when selecting their projects, affiliations, and collaborators, they often have to go through a labor-intensive and risky process when identifying potential collaborators (Schleyer et al., 2012). Due to the difficulty in finding research collaborators and the often-accidental nature of finding them, it is important for university research communities to have tools to facilitate the process. Consequently, this research is important for academicians and students alike because it will aid them in finding others who desire to pursue research projects that they would otherwise not be able to pursue, due to lack of knowledge and expertise. For example, what about situations where people do not have colleagues who share their interests or when people do not meet at conferences and form partnerships? How can one find a collaborator or start a collaborative project?
A collaboration seeker’s requirement of comprehensive information must also be balanced with the privacy and access controls requirements of potential collaborators. Additionally, recommender systems should incorporate both intentional and serendipitous discovery of potential collaborators (Schleyer et al., 2012).

The study aims to present a recommender system (RS) known as the Collaboration Mapping System that can 1) assist collaboration seekers in identifying potential collaborators for research collaborations in a convenient way, 2) provide personalized and filtered recommendations by mapping potential collaborators based on researchers’ constraints, 3) protect users private information by implementing access controls, and 4) integrate the subjective (provided by researchers themselves) and objective (publication records) information for providing better recommendations. The CMS is built on the concept of knowledge mapping which is a well-known and effective concept of knowledge management systems.

Methodology

This is a design science study and as such it will result in an artifact, in this case, a framework. This study follows the guidelines for design science presented in Hevner et al. (2004). Table 1 provides the guidelines and a description of the corresponding activities for this study.

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Activity of this Research Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design as an Artifact</td>
<td>Design a Collaborative recommender system framework named CMS, that assists collaboration seekers in identifying potential collaborators for research collaborations in a convenient way.</td>
</tr>
<tr>
<td>Problem Relevance</td>
<td>Review past literature which clearly indicates that researchers often have to go through a labor-intensive and risky process when identifying the potential collaborators (Schleyer et al., 2012).</td>
</tr>
<tr>
<td>Design Evaluation</td>
<td>Propose a framework that will be evaluated using informed arguments and illustrative scenarios (Hevner et al., 2004)</td>
</tr>
<tr>
<td>Research Contribution</td>
<td>Provides a definition and illustration of an appropriate framework for identifying and evaluating potential collaborators for research collaborations by utilizing knowledge mapping techniques.</td>
</tr>
<tr>
<td>Research Rigor</td>
<td>Utilize a theoretical framework for knowledge mapping proposed by Eppler (2008) and research collaboration literature to define a collaborative recommender system, and to justify the “solution” framework.</td>
</tr>
<tr>
<td>Design as a Search Process</td>
<td>Research attributes for expert identification, expert evaluation and other relevant literature in order to identify appropriate techniques that could be used to inform the design of the collaborative recommender system.</td>
</tr>
<tr>
<td>Communication of Research</td>
<td>Present the results to the research community in the form of a conference paper.</td>
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</tbody>
</table>

| Table 1. Methodology used for this study |

Literature Review

Recommender systems (RS) have been extensively used in many environments including mobile device applications, online retailing, social networks (Li and Karahanna, 2015), movies, music, research papers (Haruna et al., 2017), etc. Recommendation systems have been defined as “a web-based technology that explicitly or implicitly collects a consumer’s preferences and recommends tailored e-vendors’ products or services accordingly” (Li and Karahanna, 2015, p. 74).

Bedrick and Sittig (2008) developed a Facebook application called Medline publications that allows the users to list and maintain their own Medline indexed publications and identify the users with similar publication profiles. The tool is only able to handle the publications that are indexed in Medline. It doesn’t support the other repositories such as IEEE explore, HCI bibliography, Google scholar etc. This tool doesn’t include the geographical location of researchers. Moreover, the tool is unable to obtain information such as
geographical location and academic affiliations since some users on Facebook don’t provide such information due to privacy concerns. Schleyer et al. (2008) proposed a recommender system called digital vita system built on a researcher’s academic curriculum vitae (CV). The authors claim that CVs are the most up to date and comprehensive document describing the researcher’s accomplishments and activities. However, CVs lack other relevant information such as level of expertise, geographical location preferences, current interest, research needs, etc. Kong et al. (2016) proposed a collaborator recommendation system named CCRec that integrates the information on a collaboration network and a researcher’s publication to identify potential collaborators. It utilizes content-based and social network-based methods to identify the potential collaborators. The study only uses the titles of publications as the corpus of the topic clustering model, which doesn’t provide comprehensive information. Haruna et al. (2017) proposed a recommender system that recommends a set of related articles based on paper citation relations. They don’t consider user profiles and user preferences in making such recommendations. Knoth et al. (2018) also proposed a non-personalized content-based articles recommendation from global repositories. Having non-personalized and unfiltered information can lead to the issue of information overload. The existence of the sheer volume of information regarding the researchers and their research on the web confronts the users with a large number of deemed experts, resulting in them having to locate the right one. Moreover, it is more difficult to locate the right experts concerning a specific subject when the amount of information is so humongous. Information overload can be alleviated by supplying customized and filtered information (Xu et al., 2012).

Researchers may have specific needs for specific projects, such as certain skills and competencies (technical or theoretical expertise), topic areas, levels of expertise, and geographical proximity requirements. These needs may differ for each project. In this paper, we refer to researchers’ needs as collaboration constraints. Collaboration constraints are the constraints imposed by the user (collaboration seeker) when looking for a potential collaborator. As such, collaboration constraints may be different for each project.

Prior work on collaborator RS don’t include the concept of collaboration constraints when providing recommendations. Given this unique context, CMS incorporates the concept of collaboration constraints to make the recommendations more personalized and specific for each project. Moreover, past work on collaborator RS don’t address security and privacy issues. Our CMS addresses the issue of security and privacy by deploying access controls in the system. It also allows the users to make their profile status private/public to show their availability for collaborations.

Proposed Framework: The Collaboration Mapping System (CMS)

The Collaboration Mapping System (CMS) is based on the theoretical framework for knowledge mapping proposed by Eppler (2008). Knowledge mapping is a powerful tool that helps stakeholders to locate, organize, and share the organization’s most intellectual capital, i.e., knowledge, throughout the organization. Eppler proposed four knowledge mapping classification principles: The “Why”, The “What”, The “For Whom” and “When”, and the “How” and “Who” of the map.

The “Why” of the map: It refers to “which knowledge management purpose do I want to achieve with the map” (Eppler 2008, p.63). Eppler classified knowledge map into seven categories by intended purpose. The CMS is a hybrid system of knowledge marketing and a knowledge identification map. Eppler defines the knowledge identification map as the one which provides a graphic overview of knowledge assets (experts, patents, practices) and points to their locations/coordinates” (Eppler 2008, p.64). Additionally, the knowledge marketing map can be used to signal competence to the public in a certain domain. The CMS will allow the users to find experts in a domain, as well as find collaborators. The CMS will provide the collaboration seekers with a list of potential collaborators having a certain level of expertise required for the completion of the project. The system contains the information regarding which individual possesses expertise in a specific topic. The random search for potential collaboration can be enhanced and users will be less dependent on their individual informal networks. As such, users will no longer have to depend on the natural or accidental forming of collaborative partnerships. The system will search quickly and systematically for information to locate potential collaborators according to collaboration interest and constraints set by the collaboration seeker.

The “What” of the map: It refers to “ What kind of content about knowledge do I want to represent in the map?” (Eppler, 2008, p.63). Eppler further classified this principle in two categories: “Classifying maps by their format and classifying by their content types” (see Eppler, 2008 - Table 1, p.64). The CMS is a web-
based system. The users will access the it through a standard web browser. Under content types, Eppler (2008) listed 11 categories. The two categories which apply to the CMS are: Skills and Competencies and Interest and Knowledge Needs. In the proposed CMS, skills and competencies will be represented by the Expert Profile. The Expert Profile will also include interest. The interest and knowledge needs will be represented by collaboration constraints.

The “For whom” and “When” of the map: It refers to “Who should use the map in which context or situation and at what level? (Eppler, 2000, p.64). Target groups of the CMS are researchers, i.e., collaboration seekers looking for collaborators. The automatic search function will allow users to search collaborators based on collaboration constraints such as: geographical locations, topic areas, and level of interest. The user can conduct the collaborator search by just clicking on three options provided by the system i.e., geographical location, topic area, and level of expertise. Based on the inputs from the users, the system will automatically generate three outputs: best, next best, most likely. The best output is generated when there is a perfect match between collaboration constraints and extracted information from the databases. The next best output will be generated when nearly all the collaboration constraints match the information extracted from databases, except a few. The most likely output will be generated when only a few collaboration constraints match the information extracted from databases. There are certain rules established to use the system such as: 1) The users have to complete the Expert Profile in the system to utilize the system; 2) The users can register in the system even if they are not looking for the collaborators at the current moment; 3) The registered users can use the system whenever they are looking for potential collaborators. Moreover, periodic reminders will be sent to the users to check and update their visibility and availability.

The “How” and “Who” of the map: It refers to “which graphic form should be used and who can create the map in what way? (Eppler, 2000, p.64). Eppler (2008) provided four categories for this principle: table-based format, diagrammatic format, cartographic format, and metaphoric format. The graphical visual representation of the CMS will be in diagrammatic format. The CMS is a combination of the Community and Organizational maps combined with diagrammatic format maps. This system can be developed by any university in order to encourage collaboration. The system itself consists of three components: Collaborator Profile, Collaborator Evaluator, and Collaborator Identifier. See Figure 1 for more detail.

Components of the Collaboration Mapping System (CMS)

Collaborator Profile
Eppler (2000) developed the expert web, a web-based tool to make the ‘know how’ and ‘know who’ more transparent to a team. Each team member draws a chart, where he/she is required to list his main areas of interest and one area of improvement. In each box, he/she lists the contacts in the main fields of expertise. In this way, the teams’ main fields of expertise and contacts to outside expertise become more transparent. We used a similar approach to build the collaborator profile in the CMS. The collaborator Profile in the CMS consists of three repositories: Basic Information repository, Credentials repository, and Statement of Interest repository. It also includes an ontology of disciplines and a user interface. The user, who wishes to use the system has to go through a registration process. Every user will register as a potential collaborator.

The registration process requires the user to enter information in all three repositories listed above. Only the users will have the right to update/modify their respective information in these repositories. After the registration process, the user will be given the option to make his/her profile visible or hidden to ensure privacy. Schleyer et al. 2012 note that how an individual is presented to and seen by others is an important factor to be considered while designing the collaboration recommender systems. Being visible and accessible in a system carries different costs to each user with respect to privacy and control of their personal information. For some individuals, greater visibility outweighs the cost, while for some, loss of privacy and
control is unacceptable. For instance, some senior researchers with many existing collaborations may prefer to be less visible than a junior researcher for whom exposure may be beneficial. In using the CMS, the users can also set his/her availability for collaboration as active or inactive. This is done to exclude users who do not wish to collaborate during the filtering process.

**Basic Information Repository**

Basic information includes name an individual is known by in academia and publications, school, a location which includes city/state/country, email, and phone number (optional).

**Credentials Repository**

Credentials are the indicators of professional competence, professional striving, and professional welcome (Devlin et al., 2009). Credentials in our case would include titles such as professor, assistant professor, or associate professor, degrees and certifications, awards, professional memberships, and citations.

**Statement of Interest Repository**

This component applies to a researcher’s current interest or research direction for potential collaborations. The system will record such information through the statement of interests. The Statement of Interest refers to the current interest of the individual (Schleyer et al., 2012). The system will provide key terms that will feed into the statements of interest option. These key terms will be provided by the Ontologies of Disciplines. Users will select the available key terms (indicating key topics) to record their current interests. Additionally, the users will be given the option to self-rate themselves on the topics they chose. The level of expertise will be chosen on a scale of average, intermediate, and high. High expertise refers to technical know-how and theoretical knowledge. We assume that if a user possesses both technical know-how and theoretical knowledge in a specific area, he/she has high expertise in that area. Intermediate expertise refers to technical know-how or theoretical knowledge i.e., a user either possesses technical know-how or theoretical knowledge. Average expertise refers to experience i.e., years and/or level of experience perceived...
by the users themselves. Figure 2 depicts the Statement of Interest function. Figure 3 depicts the output from Statement of Interest function.

```python
def Self_Rated_Expertise(technical, theoretical):
    if technical=='yes' and theoretical == 'yes':
        return "High Expertise"
    elif technical=='yes' or theoretical == 'no' and technical=="no" or theoretical == 'yes':
        return "Intermediate Expertise"
    else:
        return "Average Expertise"
```

Figure 2. Statement of Interest Function

![Self_Rated_Expertise('yes','yes')]

Figure 3. Statement of Interest Output

Ontologies of Disciplines
The Ontologies of Disciplines can be used to better organize discipline knowledge and explicitly catalog semantics in a common way (Ning et al., 2007). This component breaks down the disciplines into topics and subtopics as well as the relationships among them. When the collaborator profile is created, the key terms will automatically populate for selection of topics regarding the statement of interests and credential repository. It also provides key terms to the user interface, when a user is making a collaboration request.

User Request/response Interface
Once the user registers him/herself as a potential collaborator, he/she can generate a collaboration request in the user request/response interface. The user can make a request to the system to search for a potential collaborator based on certain collaboration constraints. Collaboration constraints may include "research area", “level of expertise”, “geographical location”, “title” (i.e., professor, associate professor, or assistant professor) etc.

Collaborator Evaluator
The Collaborator Evaluator is responsible for evaluating potential collaborators based on the collaboration request. The Collaborator Evaluator consists of the Knowledge repository, Expertise Compiling Engine and the Archive of Links and Documents.

The Knowledge Repository
“In creating a knowledge repository, knowledge is collected, summarized and integrated across sources” (Dingsoyr and Roeyvik, 2003, p.2). The Knowledge repository in our case collects the data required to identify a potential collaborator by the collaborator mapping engine. It stores user provided data from repositories in user interface: Statement of interest, Credentials and Basic Information. It also collects the objective data from the expertise compiling engine to confirm, validate, and refute the level of expertise provided by collaborator.

Expertise Compiling Engine
The Expertise Compiling Engine calculates the expertise level of a collaborator based on the number of highly cited publication records in peer-reviewed journals. Kaufman (2008) notes that scholarly productivity is measured by the quantity of scholarly work published in peer-reviewed journals. If a paper is cited more than 44 times, then it is considered highly cited. We assume that if an individual has more than 50 highly cited publications in peer-reviewed journals, he/she possesses high expertise. These records are retrieved from the external bibliometric sites via the archive of links and documents. These results are then sent to knowledge repository. Figure 4 depicts the Expertise Compiling Engine function. Figure 5 depicts the Expertise Compiling Engine output.

```
def Highly_Cited_Journal_Publications(n):
    if n>50:
        return "High Expertise"
    elif n>35 and n<50:
        return "Intermediate Expertise"
    else:
        return "Average Expertise"
```

Figure 4. Expertise Compiling Engine Function  
Figure 5. Expertise Compiling Engine Output

Archives of Links and Documents
The Archives of Links and Documents includes i.e., external research sites such as e.g., Google Scholar citations) that provide an objective view of the potential collaborator's expertise.

Collaborator Identifier
The Collaborator Identifier receives the user request in the form of collaboration constraints and responds to the request in the form of potential collaborators. It is comprised of the Collaborator Mapping Engine.

Collaborator Mapping Engine
The Collaborator Mapping Engine drives the collaborator mapping process. It is similar to the knowledge mapping process. The Collaboration Mapping Engine sends the collaboration request to the Knowledge Repository to retrieve a list of matching collaborators. The Collaboration Mapping Engine determines the best match, intermediate match, and average match of potential collaborators. This match is based on the importance weights provided by the user. It then returns the output back to the user in the form of “best match”, “intermediate match” and “average match”.

Evaluation
Hevner et al. (2004) listed informed argument and illustrative scenario as types of methods to evaluate an artifact. In our study, we used both the informed argument and the illustrative scenario to evaluate the usability and functionality of the CMS.

Informed Argument
The informed argument provides the relevancy of each CMS component as well as the justification of its performance from previous studies. Table 2 provides the justification of each component in CMS.

<table>
<thead>
<tr>
<th>Components in CMS</th>
<th>Justifying Comments of Each Sub-Component in CMS from Previous Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborator Profile</td>
<td><strong>Basic information</strong>: This component is a standard component in every recommender system.</td>
</tr>
<tr>
<td></td>
<td><strong>Credentials</strong>: Credentials are critical components of perceived individuals’ competence (Spiegel, 1976). The study conducted by Devlin et al. (2009) indicated that “the number of credentials” play a critical role in evaluating an individual’s competence. The larger the number of credentials, the greater the competence.</td>
</tr>
<tr>
<td></td>
<td><strong>Statement of Interest</strong>: In most collaborator RS, the user submits his/her preferences through the Statement of Interest. The Statement of Interest indicates the</td>
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</table>
type of collaboration that would appeal to an individual or his/her current desire for new collaborators (Spalek, 2008). The Statement of Interest assists the collaborative RS in identifying potential collaborators whose needs and incentives are complementary to those seeking collaboration (Schleyer et al., 2012). When seeking expertise, the collaboration seeker also needs to know how much and how well one knows about a certain topic (Yimam and Kobsa, 2003). Self-rated expertise is one such way through which an individual can convey how much he/she knows about a certain topic (Nevo et al. 2012).

**Ontologies of Discipline:** Ontology based recommender systems perform better than the classic recommender systems in terms of precision and accuracy (IJntema et al., 2010). Ontology based recommender systems enable users to submit queries that can be used to acquire more precise and relevant outputs (Madin et al., 2008).

### Collaborator Evaluator

**Knowledge Repository:** Factual information is one of the many types of information that can be stored in knowledge repositories. Factual information relates to use of information to determine facts. (Dingsoyr and Royrvik, 2003). Factual information that determines that an individual is a potential collaborator comes from three sources: credentials, statements of interests and publications. A potential collaborator refers to an individual who is an expert in a specific domain and is currently interested in working on a specific area. Credentials and publications confirm an individual’s expertise and productivity, whereas Statement of Interest determines an individual’s willingness to collaborate (Schleyer et al., 2012).

**Expertise Compiling Engine:** Past studies in literature have used “the number of highly cited publications” as one of the attributes in determining publication productivity of universities for scholarly accomplishments (Richter et al., 2008). The study by Sandstrom and Van den Besselaar (2016) revealed that that number of highly cited articles in peer reviewed journals depicts the productivity of a researcher.

**Archives of links and documents:** Bibliometric tools become handy when evaluating a researcher’s productivity through publication records. Publication records assist with confirming, validating, and refuting the level of expertise provided by the researchers themselves (Schoombee et al., 2013).

### Collaborator Identifier

**Collaborator Mapping:** The Collaborator Mapping is similar to knowledge mapping, which is a powerful tool that helps stakeholders to locate, organize, and share an organization’s most intellectual capital, i.e., knowledge, throughout the organization (Leyer, 2016).

<table>
<thead>
<tr>
<th>Collaborator Evaluator</th>
<th>Knowledge Repository</th>
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<tr>
<td>Factual information is one of the many types of information that can be stored in knowledge repositories. Factual information relates to use of information to determine facts. (Dingsoyr and Royrvik, 2003). Factual information that determines that an individual is a potential collaborator comes from three sources: credentials, statements of interests and publications. A potential collaborator refers to an individual who is an expert in a specific domain and is currently interested in working on a specific area. Credentials and publications confirm an individual’s expertise and productivity, whereas Statement of Interest determines an individual’s willingness to collaborate (Schleyer et al., 2012).</td>
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A **Collaboration Mapping System (CMS): Who Knows What?**

### Illustrative Scenario

A user registers in the system by providing information for three repositories: Statement of Interest repository, Credentials repository, and Basic Information repository. The Ontologies of Disciplines provides the key terms to the User Request Interface, Credentials repository and Statement of Interest repository. The user will be provided a list of research areas to indicate their current area of interest (Statement of Interest) along with the level of expertise for their current area of research (see Figures 2 and 3). Once the user registers in the system, only he/she will have user rights for updates/modifications. The information stored in these repositories is then sent to Knowledge Repository. The knowledge Repository retrieves the registered user’s expertise level from the Expertise Compiling Engine. This expertise level is based on the publication records (see Figures 4 and 5). Once the user is registered, he/she can use the system to find a potential collaborator. The user can make the request to the system to search for a potential collaborator based on certain collaboration constraints. Collaboration constraints may include “research area”, “level of expertise”, “geographical location”, “title” i.e., professor, associate professor, or assistant professor. The user is required to apply an importance weight to each constraint item to indicate the order of importance. For instance, if a user is requesting an expert in the area of blockchain and this is the most important constraint, he/she would assign a weight of 1 to the “research area” constraint. The Collaboration Mapping Engine receives the request and sends it to Knowledge Repository to retrieve a list of matching
collaborators. The Knowledge Repository stores all the user’s information, including the current research area of interest and expertise level retrieved from the Statement of Interest repository, the geographical location retrieved from the Basic Information repository, and the title retrieved from the Credentials repository. According to the importance weight provided to each constraint item by the user, the Knowledge Repository prepares a list of potential collaborators, providing a match has been made. The Knowledge Repository sends this list back to Collaboration Mapping Engine. The Collaboration Mapping Engine determines the best match, intermediate match, and average match of potential collaborators. This match is based on the importance weights provided by the user. The greater the number of constraint item matches, the better the match, which indicates a best match. It then returns the output back to user in the form of “best match”, “intermediate match” and the “average match”.

Limitations and Conclusion

The CMS is restricted to the Google Scholar Citations for the objective information retrieval. In the future, the Archival of Links and Documents will extend to other relevant academic and research sites. Factors, such as awareness, trust, incentives, work style, personality, and fear of showing a lack of knowledge plays an important role in evaluating an expert. The CMS does not take into account these factors. Since the system uses Ontologies of Disciplines for key population terms, certain topics may not be represented in the system.

Researchers often have to go through a labor-intensive and risky process when identifying the potential collaborators. Due to the difficulty in finding research collaborators and the often-accidental nature of finding them, it is important for university research communities to have tools to facilitate the process. This study proposes a collaborative recommender system called the Collaboration Mapping System (CMS). The proposed system will assist collaboration seekers in identifying potential collaborators for research collaborations in a convenient way. It will also provide personalized and filtered recommendations by mapping the potential collaborators based on researchers’ collaboration constraints. We plan to further the study by empirically evaluating the proposed artifact.

References


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Spallek, H., Schleyer, T., & Butler, B. S. (2008, December). Good partners are hard to find: the search for and selection of collaborators in the health sciences. In Good Partners are Hard to Find: The Search for and Selection of Collaborators in the Health Sciences (pp. 462-467). IEEE.


