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Informal requirement spec. (1)

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Abstract

The document describes the first informal specification for the "Fortgeschrittenenpraktikum" in the winter term 2004/05. It is also available via the website. The requirement specification is being updated and refined during the semester according the the project's progress and the decisions taken. To reflect the development, the specification is qualified with a versioning number.

Contents

1 Introduction

The document describes *informally,* i.e., in plain English, the functionality (or rather the purpose) of *Coma*, a tool to assist in the distributed preparation, organization and processing of a conference, workshop, or similar event.

At the current stage of affairs, the rest of the document sketches the intention of the project, the informal functionality etc.

2 General purpose

Scientific conferences nowadays are in general prepared, advertised, and managed via the web. In particular, part of the organization is done in a "distributed" and loosely couple manner, i.e., the actors in the organization work a various locations, time zones, etc.

At an rather abstract level, the goal is to allow a group of experts, to collaborate to find an agreement in selecting from a set of contributions to the conference.

3 Phases

The organization of the conference takes a limited amount of time. We distinguish the following phases:

1. assembly
2. paper submission
3. reviewing, consensus finding about the selection of the submission
4. registration

The phases themselves are ordered linearly, the exact duration or distance of the single events should be adaptable. In the following, we discuss the purpose of the phases each the outcome of each. The phases are separated by events.

3.1 Phase: Assembly

The assembly is done by the *program chairs.* The result of the assembly phase is the *program committee,* i.e., the collection of experts or individuals that will, in later phases, decide about the program.

The program committee is not *self-assembled.* It is the task of the program committee to *invite* members via email. The *candidates* are free to decide, whether they wish to participate, which means they should actively *acknowledge* participation or they should reject. By default, candidates are not-member unless they positively acknowledge participation.

3.2 Event: Call for papers

Once the program committee is fixed the conference is "advertised", i.e., authors are invited to contribute to the event. The document, basically an url (i.e., a "web-page" which contains this advertisement is called the *Call for papers.* I must contain all information about the conference relevant for authors, which includes

1. date
2. name
3. location
4. important dates
5. reference to the submission page
6. short description as free form text
7. names, affiliations and perhaps other information about the organizing people.

3.3 Phase: submission

The effect of the announcement is that authors decide to contribute to the conference. The contributions are called *papers.* The paper is *uploaded* by an author onto the appropriate webpage, the act of doing so is the *submission.*

A paper has at least one *author,* but may have more than one. One author may have more than one paper. One author of a paper is considered as the main author, known as the *corresponding author*. This is the author the organization of the conference deals with.

An author can decide to *retract* a paper. In this case, not older versions (if any) of the paper are restored, but the paper is removed completely.

3.4 Event: submission deadline

The submission phase is terminated by the *submission deadline,* a pre-announced time after which no submission is possible. Until that time an author can submit many versions of the same paper. Only the last one before the deadline counts, i.e., each later version overwrites the earlier one.[1]

It is possible for an author to remove a paper even after the deadline (see Section 3.3).

3.5 Phase: Reviewing

Reviewing is the process of selecting from the submission a set of papers. The selection is done by the program committee in a joint effort using the web server. The (informal and conflicting) goals are:

- the "*best*" papers are selected.
- the workload is distributed in a fair manner onto the members.
- each paper gets an equal share of the reviewing task.
- each reviewer gets the papers that he wants to (and he is the best expert for).

Furthermore, the participants ...

The above specification is obviously informal and unprecise as it allows a number of interpretations. We do not fix an exact specification here, because there are probably many plausible solutions. Instead we discuss aspects of the mentioned goals.

[1] We cannot prevent that an author acts stupid and submits a later version of the same paper erroneously as a new paper, because we cannot check the semantics of the paper.

3.5.1 Assignment of papers

One task is, the *assignment* of papers to reviewers. It is to be expected that there are more papers than reviewers, and furthermore one should cater for the case that each paper gets more than one reviewer. Preferably, and unlike the selection of the papers, the assignment is done *automatically,* i.e., without general discussion.

Furthermore, the assignment should be "fair" wrt. the reviewers and wrt. the papers, in that the *load* is equally shared. An easy, and again not very useful solution would be to make a random assignment, under the side condition of approximate load balance.

The disatvantage is, that in general the members of the commitee have slightly different field of expertise, and preferably a member evaluates papers in a field he is a strong expert of. Two (at least) could be imagined.

Assignment by topic Papers are classified according to a finite list of *topics.* The topics are predefined for the conference, and the *author* must pick those he feels his paper fits in. He might choose more than just one topic. Also each reviewers, beforehand, choose a number of topics which he prefers to read papers from. Once the papers are in, the software tries to take the preferences of the reviewers into account, but of course still maintaining load balance.

Assigment by paper This approach does not rely on predefined topics.[2] Each referee shortly looks at the list of papers and declares preferences (or dislikes) according to some schema. It this might be very simple like "I want 2, 17, and 42". Also it should be possible to state: "I cannot review this paper.".[3] Again in this scheme, the selection mechanism should take the choices into account, but adhering to the side condition of balance. In other words: if someone only picks one paper, it does not mean he will get only one. If 15 people find paper 76 very interesting, it does not mean that paper 76 gets 15 reviewers.

One can imagine to combine those approaches, or to make it a choosable alternative.

3.5.2 Selection of papers

In general there are more papers than there's time, so the intention is, of course, to pick the best of them. To talk about finding the "best papers" is misleading, though, because this uses the idealistic assumption that there are best papers and one just does not know yet which ones they are. On the other hand: even if it is more than questionable whether there is a globally and universal quality scale to be applicable to the papers, it does not mean that some papers are better than others, in the sense that most everyone would agree on that. The question is to come fast and efficiently to an agreement about this issue.

Let's assume two fundamentalist approaches, which sheds light about the range of possibilites. Both sketched approaches are in praxis not very useful and should be avoided. In order to talk about the best papers, one obviously assumes an (imaginary) *linear order* wich needs to be determined by consensus and now the question is, how to reach at this order.

[2] This does not mean that there could not be predefined topics.

[3] Typically this is the case, if one sees that it's a paper by some friend/collegue . . . so that one fears that one does not have an unbiased opininion.

Discuss everything One standpoint is: all participants discuss all papers in a free-form manner until all agree on some order, and this fixes the best papers. This solution is impractical: A *rational* agreement, i.e., an agreement based on common understanding, would require that all reviewers read all papers (which one wants to avoid . . .). And even if all papers are read and discussed by all committee members, to reach at a common order lead to endless dispute.

Discuss nothing The opposite standpoint is: There is *no discussion* at all. Each reviewer gives the paper(s) he reviews a numerical value, say a mark. At the end the marks for each paper are averaged,[4] the results are ordered linearly, and then the best are chosen.[5] That is the most efficient solution but it might easily lead to bad decisions. In general, there is more than one reviewer per paper but there are in most cases not more than 4, and this makes the mean value of ratings as rather random.

3.6 Event: Notification

Notification is the event which informs the authors about the final decision of the reviewing process. There are only two possible outcomes, namely *yes* or *no* for each paper. Besides the binary decision, the author is informed about the "opinion" concerning his submission. Concerning what information the authors are allowed to see not, see also Section 4.

3.7 Event: Call for participation

As the call for papers (cf. Section 3.2),

3.8 Phase: registration

This phase is characterized by the interaction of *participants* of the conference with the tool.

4 Users

By users, we mean people interacting with the tool/the service. People interact in various roles. They might include:

- administrator
- program committee chair
- program committee member
- (corresponding) author[6]
- participant of the conference.
- outsider, general public

[4] In general a paper gets reviewed by more than one expert.

[5] For the discussion we ignore the fact that there might be equal outcomes.

[6] There are also co-authors, but they in general do not interact with the tool.

The groups of people are not disjoint, in other words, an individual can interact with the service in different roles (at different times).

Crucial is to obey certain *rules* concerning who (respectively who in which role) is allowed to do what or to see what. This also changes during time.

Here is a number of informal restrictions.

1. a not-yet-accepted paper may only be seen by the author who submitted it.
2. the identities of submitting authors must be unknown
3. a reviewer must not review his own paper, i.e., he must of course not influence the decision
4. an author never sees the discussion on his paper
5. an author never sees the identity of his reviewers
6. an author sees the verdict once all decisions are taken
7. a reviewer does not see the reviews of his colleagues, until he has sent his own review
8. a chair can see everything all the time.
9. it is expected that at least one author of an accepted paper participates at the conference, i.e., each accepted paper must be presented by an author
10. *optional:* an review must not know the identity of the authors of the papers he reviews.

4.1 Authors

5 Event: Further requirements