Requirements Engineering 1999

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Foreword

RE '99 is the fourth meeting of the bi-annual IEEE International Symposium on Requirements Engineering. Six years has past since the inaugural meeting of this series. At that time, RE '93 provided the first conference series for requirements engineering in an attempt to overcome the void of a conference series for requirements engineering. Since then, conferences on requirements engineering have become ever more popular. Now, there are a number of conference series in addition to the International Symposium on Requirements Engineering, including: IEEE International Conference on Requirements Engineering (bi-annual), International Workshop on Requirements Engineering, and International Workshop on the Requirements Engineering Process. Of course, many more general conferences, such as ICSE, CAiSE, and INCOSE, also include requirements engineering tracks are part of their programs. Finally, there is also the journal Requirements Engineering Journal (Springer), as well as special issues in IEEE Transactions on Software Engineering, Journal of Automated Software Engineering (Kluwer), and IEEE Software. Today, requirements engineering research has many forums for the exchange of ideas among researchers and practitioners.

RE '99 is the first of the series to be held in the summer, rather than the winter. Thus, it seemed fitting that the theme for RE'99 would be Requirements in a Changing World. The call for papers solicited contributions that addressed "changes in people's expectations, in business practices, in social forces, in enabling technology opportunities." The resulting program addresses change, to varying degrees, from five topic perspectives: use cases and scenarios, social analysis, viewpoints, formal approaches, and non-functional requirements.

The call for papers elicited 119 abstracts. Three weeks later, 80 full-length papers were submitted from 15 different countries. Of the 80 papers submitted, 43 were from Europe, 23 were from North America, 7 were from South America, 5 were from Australia, 1 from New Zealand, and 1 from Japan. Of the 80 submissions, 61 were from academic organizations, while the remaining 19 were from industrial organizations.

The selection process was conducted in two phases. First, each paper submission received at least three reviews. Second, the submissions were discussed at the program committee. A common acceptance standard was applied to all submissions. Specifically, some form of validation was required. However, various forms of validations were accepted according to the type of contribution.

As indicated in the call for papers, three categories of papers were sought: (1) discovery and invention, (2) integration and analysis, and (3) application and evaluation. Thus, submissions that introduced a new technique need not have been empirically validated, but must have included a discussion of their relevance and practicality. Conversely, submissions that described the application of previously described techniques must have applied a substantial validation technique. As a result of applying this selection standard, the proceedings include 19 exceptional papers on requirements engineering. The papers are a mix of innovative ideas and validation of more widely known techniques.

The papers appearing here are roughly grouped into the following five topic areas:

- Use Cases and Scenarios, Languages and techniques for defining and analyzing system behaviors through sets of related scenarios. Each scenario defines a linear sequence of events that represents a narrow aspect of a system's required behavior.

- Social Analysis, Methods or paradigms for defining and analyzing systems that directly address human or social aspects of requirements engineering.
- Viewpoints, Languages and techniques for defining and analyzing systems from multiple views or perspectives. An individual view can represent a subset of system requirements that reflect a stakeholder's opinion, subsystem requirements, various non-functional aspects, or other requirement partitions.
- Formal Approaches, Languages and techniques for formally defining and analyzing properties of requirements.
- Non-Functional Requirements, Languages and techniques for defining and analyzing non-functional system properties, such as performance, security, or costs.

These topics represent a portion of entire requirements engineering landscape. Yet, the contributions are dominated by research on use cases and scenarios, a technology that has had rapid and successful uptake in industry. This reflects a widespread interest in developing, understanding, evaluating and extending technologies in collaboration with industry.

The remainder of the technical program for RE'99 reflects and extends the technical papers. Mini-tutorials on both use cases and scenarios are included in the program. The program also includes areas not directly addressed in the technical papers. There are fewer papers in other important topics, such as industrial case studies, education, and tools. Panel and mini-tutorials remedy these absences. A panel on multi-disciplinary RE will address some of the issues surrounding what is appropriate in educating future requirements engineers. Industry's increasing reliance on software intensive systems motivates our panel on dependable systems, while another mini-tutorial summarizes much of what we have learned on designing for usefulness. Finally, in the increasingly web-based world of tools and documents, we have added a mini-tutorial on the increasingly influential markup language XML.

In summary, the papers represent an excellent cross-section of current requirements engineering research. The symposium as a whole presents a snapshot of what is foremost in the mind of the requirements engineering community as we approach the new millennium

Acknowledgments and Thanks

RE '99 has been a collaborative effort. While we have helped organize the symposium, many people have done the hands-on work to realize our goals. The steering committee guided our decisions from initial planning to through the final program; for this, we thank Stephen Fickas, Anthony Finkelstein, Sol Greenspan, Connie Heitmeyer, John Mylopoulos, and Pamela Zave. Additional guidance was provided by: Dan Berry, Martin Feather, Colin Potts, and Axel van Lamsweerde. Throughout the process, Sol Greenspan provided substantial assistance including the local arrangements for the program committee meeting. For that, the whole PC would like to say, "Thanks Sol!" Of course, the program would not exist, but for the work of the program committee (listed elsewhere in these proceedings). In addition to their work as program committee members, a few people took on the role of mentor for papers that needed a bit more polishing; for that, we would like to thank: Connie Heitmeyer, John Mylopoulos, Klaus Pohl, Colin Potts, and Axel van Lamsweerde.

We would also like to thank those who helped us organize RE '99. This includes the doctoral consortium chair, Klaus Pohl, the tutorials chair, Annie Anton, and the financial chair, Harriet Cotter. While Harriet is only listed as the financial chair, she has done that, and far more. Thanks Harriet! Others at the University of Limerick provided their commitment and support, including Norah Power, Dermot Shinners-Kennedy, Mikael Fernstrom, Kate Sheahan and, especially, Eileen Madden.

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