

Cooperative and Human Aspects of Software Engineering – CHASE 2013

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Abstract

Software is created by people for people working in a range of environments and under various conditions. Understanding the cooperative and human aspects of software development is crucial in order to comprehend how methods and tools are used, and thereby improve the creation and maintenance of software. Both researchers and practitioners have recognized the need to investigate these aspects, but the results of such investigations are dispersed in different conferences and communities. The 6th workshop on Cooperative and Human Aspects of Software Engineering held at the International Conference on Software Engineering continued the tradition from earlier workshops and provide a lively forum to discuss current developments and high quality research in the field, providing both a meeting place for the community and the possibility for researchers interested in joining the field to present and discuss their work in progress and to get an overview of the field. Further dissemination of research results will lead to improvement of software development and deployment across the globe.

Keywords Cooperative and Human Factors, Software engineering

Introduction and Background

For many years, researchers in computer science have emphasized the human and cooperative side of software development [1, 2]. While early research in software engineering focused on the development of techniques and tools, research on the cooperative usage of these tools had a relatively slow start. The importance of people-oriented factors in software development has been recognized for many years, but the context of software development and the complexity of the software being developed mean that the details of these ‘people-factors’ change constantly. Investigating human and social aspects of software engineering (SE) such as teamwork collaboration, motivation, trustworthiness, and the impact of different work practices on code quality therefore remains crucial to advancing the state of SE research and practice.

Ten years ago, a growing understanding of the methodological difficulties of researching the social side of software motivated a workshop addressing the usage of social science methods in SE [3]. Research on the social side of software from the onset applied qualitative [4] as well as quantitative research methods [5] and

combined the understanding of development practice with the development of tools, techniques and methods. After the workshop in 2000, cooperative and human aspects were represented more regularly at the International Conference on Software Engineering, sometimes in the form of a workshop [6]. It is only with the Cooperative and Human Aspects of Software Engineering (CHASE) workshop series, that a stable place for discussing related research has been established [7, 8].

CHASE is establishing itself as a discourse bridging areas such as software engineering, computer supported cooperative work and human computer interaction. Related research is not only presented at the ICSE main conference, but also at the CSCW (Computer Supported Cooperative Work and Social Computing Conference), CHI (Conference on Human Factors in Computing Systems) and HCI (International Conference on Human-Computer Interaction). As many CHASE researchers use qualitative empirical research methods, there is a substantial overlap between qualitative research on software engineering and research addressing Cooperative and Human Aspects. Related special issues of leading journals further contributed to establishing quality criteria and reference points for the field [9, 10, 11]. However, as the workshop proceedings [12] show, quantitative methods are still used to study CHASE issues. By summarizing the workshop we aim to give a taste of the research discussed and provide pointers to relevant literature for the interested reader.

Workshop Goals

Software engineering is about cooperative choices and decisions informed by the multiple viewpoints of the several stakeholders. Methods, tools and techniques have been shaped over many years by best practices. However in the age of globalization, Software Engineering faces new challenges, such as distributed and cross-cultural development and deployment [11]. Established methods and concepts need to be re-assessed under a new paradigm and be re-defined within the context of development [13].

The main goal of this workshop is to disseminate current research within the CHASE community, and to explore research directions that will lead to improvements in the creation and maintenance of software.

A secondary goal is to continue to support the community of researchers and practitioners investigating cooperative and human

aspects of software engineering, including those who typically attend ICSE and those who hail from other disciplines. This workshop will provide a forum for discussing high quality research in the area as well as a meeting place for the community.

Workshop Themes

Software engineering involves choices and decisions informed by the stakeholders' multiple and different viewpoints. Methods, tools and techniques have been shaped over many years by best practices. However, in the age of globalization, Software Engineering faces new challenges, which should be investigated from different perspectives. Therefore, topics of interest to the workshop include, but are not limited to, the following:

- Social and cultural aspects of software engineering,
- Psychological and cognitive aspects of software engineering,
- Managerial and organizational aspects of software engineering,
- Cooperation in agile development,
- Community based development processes like Open Source development,
- Software engineering as cooperative work,
- Coordination and mutual awareness in large-scale software development,
- Cooperation between software developers and other professionals over the lifetime of a system,
- Knowledge management in software engineering,
- Distributed software development,
- User participation in regard to ownership, training, level of involvement interplay with developers, sustainability and deployment aspects.

Examples of possible types of contributions include:

- Empirical studies of software engineering teams or individual software engineers in situ, using approaches such as ethnographies, grounded theories, surveys, interviews, data mining, etc,
- Laboratory studies of individual and team software engineering behavior,
- Novel tools motivated by observed needs such as new ways of capturing and accessing software-related knowledge, navigational systems, communication, collaboration, and awareness tools, visualizations, etc.

To address both goals of the workshop we invited three paper formats that covered position papers, work in progress (short papers) and full length research papers. These different categories offer researchers who are at different stages in their research maturity the opportunity to benefit from workshop participation.

Workshop Program and summary

As in previous years, the program consisted of paper presentations selected to trigger interesting discussions, plenary discussions and coffee table rounds providing the possibility for in depth discussions of the papers presented as posters.

We received the record number of 51 high quality submissions from academics and industry. Each paper was peer-reviewed by at least two program committee members. In the end, we were delighted to present altogether 32 excellent contributions: 9 full length papers, 21 short papers and 2 position papers. Table 1 gives

an overview over the program.

Table 1: CHASE 2013 program overview.

Opening and "slide madness"
Keynote
Grounded Theory in Agile Software Development James Noble (Victoria University of Wellington, NZ)
Paper session 1
Igor Steinmacher, Igor Wiese, Ana Paula Chaves and Marco Gerosa. Why do Newcomers Abandon Open Source Software Projects?
Jason Tsay, Laura Dabbish and James Herbsleb. Social Media in Transparent Work Environments
A. César C. França, Ana C. M. L. de Araujo and Fabio Q. B. Da Silva. Motivation of Software Engineers: A Qualitative Case Study of a Research and Development Organisation
Damian Andrew Tamburri, Philippe Kruchten, Patricia Lago and Hans Van Vliet. What is Social Debt in Software Engineering?
Coffee table rounds
Sherlock Licorish and Stephen MacDonell. Differences in Jazz project leaders' competencies and behaviors: a preliminary empirical investigation
Ilenia Fronza, Andrea Janes, Alberto Sillitti, Giancarlo Succi and Stefano Trebeschi. Cooperation wordle using pre-attentive processing techniques. Tested for color blind observers
Jae Young Bang, Ivo Krka, Nenad Medvidovic, Naveen Kulkarni and Srinivas Padmanabhuni. How Software Architects Collaborate: Insights from Collaborative Software Design in Practice
Gerardo Matturro. Soft skills in software engineering. A study of its demand by software companies in Uruguay
Christoph Dorn and Alexander Egyed. Towards Collaboration-centric Pattern-based Software Development Support
Braden Simpson, Eirini Kalliamvakou, Nathan Lambert and Daniela Damian. Aduno: Real-Time Collaborative Work Design In A Shared Workspace
Davi Santos, Jacilane Rabelo, Andréia Vieira, Ellen Barroso, Mário Dib and Tayana Conte. A Qualitative Study about the Life Cycle of Lessons Learned
Nilay Oza, Fabian Fagerholm and Juergen Muench. How Does Kanban Impacts Communication and Collaboration in Software Engineering Teams?
Sabrina Marczak and Vanessa Gomes. On the Development of a Theoretical Model of the Impact of Trust in the Performance of Distributed Software Projects
Ulrike Abelein and Barbara Paech. A Descriptive Classification for End User -Relevant Decisions of Large-Scale IT Projects
Brandt Braunschweig and Carolyn Seaman. An Examination of Shared Understanding in Free/Libre Open Source Project Maintenance
Amani Alali and Jonathan Sillito. Motivations for Collaboration

in Software Design Decision Making

Jonathan Sillito and Andrew Begel. App-Directed Learning: An Exploratory Study

Lee Martie and Andre van der Hoek. Toward Social-Technical Code Search

Yi Wang and David Redmiles. Understanding Cheap Talk and the Emergence of Trust in Global Software Engineering: An Evolutionary Game Theory Perspective

Eisha Hasnain, Tracy Hall and Martin Shepperd. Using Experimental Games to Understand Communication and Trust in Agile Software Teams

Olga Liskin, Kurt Schneider, Stephan Kiesling and Simone Kauffeld. Meeting Intensity as an Indicator for Project Pressure

Thomas Latoza, Evelina Shabani and André van der Hoek. A Study of Architectural Decision Practices

Thomas Latoza, W. Ben Towne, André van der Hoek and James Herbsleb. Crowd Development

Irit Hadar, Sofia Sherman, Ethan Hadar and John Harrison. Less is More: Architecture Documentation for Agile Development

Edward Smith, Robert Loftin, Emerson Murphy-Hill, Christian Bird and Thomas Zimmermann. Improving Developer Participation Rates in Surveys

Alberto Sampaio, Edwin Gray and Isabel B. Sampaio. The Need of a Person Oriented Approach to Software Process Assessment

Mansoor Zahedi and Muhammad Ali Babar. Role of Social Structures for Cross-Organizational Collaboration in Global Software Development

Brendan Cleary, Margaret-Anne Storey, Carlos Gomez, Leif Singer and Christoph Treude. Analyzing the Friendliness of Exchanges in an Online Software Developer Community

Paper session 2

Lutz Prechelt. Agile Offshoring: Using Pair Work to Overcome Nearshoring Difficulties

Bora Caglayan, Ayse Bener and Andriy Miransky. Emergence of Developer Teams In The Collaboration Network

Marcelo Serrano Zanetti, Ingo Scholtes, Claudio Juan Tessone and Frank Schweitzer. The Rise and Fall of a Central Contributor: Dynamics of Social Organization and Performance in the GENTOO Community

Katja Kevic, Sebastian C. Müller, Thomas Fritz and Harald C. Gall. Collaborative Bug Triaging Using Textual Similarities and Change Set Analysis

Discussion on the future of CHASE

Closing session

behaviors, motivation and trust. The second group of papers involves practices such as lessons learned, learning, and decision making. The third group of papers is related to communication, collaboration and cooperation, with studies about real-time collaborative work design in a shared workspace, and meeting intensity, among others. The fourth group explores social aspects such as social structures, social networking, social debt, and social media. Finally, the fifth group of papers includes studies related to agile methodologies open source projects and crowdsourcing. Papers in this last group included agile practices such as pair programming, the impact of Kanban on communication and collaboration, shared understanding in open source projects, and crowd development.

The workshop's website can be access in the URL <http://www.chaseresearch.org/workshops/chase2013>.

The Future of Chase

Cooperative and human aspects have become an established part of the mainstream of software engineering. The workshop brings together researchers and practitioners interested in high quality research on human and cooperative aspects of software engineering. This was the sixth edition in an annual series that began in Leipzig, Germany, in 2008. Since then, CHASE has been a meeting place for the growing community and the possibility for researchers interested in joining the field to present their work in progress and get an overview over the field.

The participants of the workshop emphasized the importance of keeping the workshops diverse – open to research addressing any topic related to cooperative and human aspects of software engineering – rather than focusing on specific emergent themes. Though the workshop topic has become part of the main program of the International Conference on Software Engineering as well as other conferences, the workshop plays an important role in discussing emerging research among peers, building collaborations and providing feedback. Especially, the tradition of combining presentations with more interactive discussions in the form of coffee table rounds (focused discussions of a specific number of posters) was appreciated.

Summary and Conclusion

Cooperative and human aspects in Software Engineering have become increasingly important as development involves more and more stakeholders distributed over the globe. Only continuous interdisciplinary and cross-cultural research on cooperative and human aspects can inform the design of effective tools and techniques to support an adequate software development process. The annual workshop presents one of the significant platforms for the exchange of theoretical and empirical findings on this topic.

We would like to thank everyone who has helped to make this year's workshop possible: ICSE workshop chairs, Margaret Burnett and Holger Giese, for their high quality support; the ICSE conference publishing team, the program committee members, and all authors, speakers, organizers, and participants, for making this year's workshop a very exciting event.

The submissions combined several qualitative research methods with quantitative approaches. This year the papers covered a wide range of topics, and they were organized in five different groups. The first group explores human aspects such as competencies,

Workshop Organization

Organizing Committee

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PUCRS, Brazil
- Rashina Hoda
University of Auckland, New Zealand
- Marcelo Cataldo
Bosch Corporate Research, USA
- Helen Sharp
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- Yvonne Dittrich
ITU Copenhagen, Denmark
- Cleidson de Souza
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Program Committee

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- Ulrike Abelein, University of Heidelberg, Germany
- Ban Al-Ani, UC Irvine, USA
- Gabriela Avram, University of Limerick, Ireland
- Andrew Begel, Microsoft Research, USA
- Fabio Cafelato, University of Bari, Italy
- Marcelo Cataldo, Bosch Corporate Research, USA
- Tayana Conte, UFAM, Brazil
- Daniela Damian, University of Victoria, Canada
- Torgeir Dingsoyr, SINTEF, Norway
- Yvonne Dittrich, ITU Copenhagen, Denmark
- Tracy Hall, Brunel University, UK
- Orit Hazzan, Technion Institute, Israel
- Rashina Hoda, University of Auckland, New Zealand
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- Thomas Latoza, UC Irvine, USA
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