Stefan Gruner, Bernhard Rumpe (Eds.)

FM+AM`2010

Second International Workshop on Formal Methods and Agile Methods

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2nd Workshop on Formal Methods and Agile Methods FM+AM'2010: Foreword and Editorial Preface

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Abstract: FM+AM'2010, the 2nd international workshop on Formal Methods and Agile Methods in software engineering, took place under the umbrella of the 8th IEEE international conference on Software Engineering and Formal Methods, SEFM'2010, in Pisa (I), September the 17th, 2010. This workshop had one invited lecture, and four reviewed papers presented. This editorial preface motivates the main ideas that were guiding this workshop and provides some information about its committee as well as its paper review and selection procedure.

1 Motivation

Formal Methods (FM) and Agile Methods (AM) are two rather different approaches to software design and development. Though in software engineering, FM and AM are widely regarded as incommensurable methodological antagonists [B+09], both have their offspring in the continuing struggle, formerly known as 'software crisis', for a high software product quality at the end of an efficient production process,. Though we do not speak of a 'software crisis' in these days any more, (and though also many hardware and civil engineering projects are running late, go over their budgets and deliver products of questionable quality), we still cannot be satisfied with the current ways of software development. Both FM and AM come as particular responses to these challenges of software software development, which are typically characterised by a too slow and error-prone software production process in combination with a too low software product quality at the end of the production process.

While FM have concentrated on techniques for high-quality results, they are perceptively slow and tedious and thus costly. They are assumed to be 'heavyweight', where every single step needs to be traceable, validated or even verified. AM on the other hand are concentrating on efficiency of the development process together with a number of techniques to focus on the right requirements, etc. AM are generally regarded as 'lightweight' and thus more amenable, when dealing with small projects. State of the art has it that AM are used in smaller projects and when risk does not involve substantial amount of money or even lives.

The goal of this workshop is to discuss these issues, and to bring these different viewpoints and aspects closer to each other. As mentioned above: whereas the FM colleagues in software engineering are most concerned about the product correctness aspect of software design, the AM colleagues seem to be most concerned about the aspect of production velocity, though this distinction between FM and AM is (of course) somewhat coarse and should be taken with a grain of salt. For both 'schools' of software engineering the often questioned 'engineering-ness' of software engineering, as an academic and practical discipline, is at stake [DR09]. This is also the reason why combinations of the two methodological approaches, FM and AM, should be feasible and possibly fruitful. This is the theme which this workshop, FM+AM'2010 (under the umbrella of SEFM'2010, Pisa, Italy, September 2010), was meant to explore, with the ultimate aim of making formally sound methods of software development faster, and rapid development methods more formally sound. This could –for example– be achieved by providing formally verified CASE tools to agile development groups, or by introducing agile work methods, such as working in pairs and short iterations, into the domain of formal model design. Already in the year 2004 the related idea of extreme modelling (in analogy to extreme programming) had been proposed [A+04]; a similar idea is nowadays called agile modelling.[1] More pragmatically it might also be helpful to use formal methods only in certain critical parts of an otherwise agile development project, whereby special care must be taken about the accurate identification and the precise definition of such critical parts.

However, not too many software engineering researchers seem to be interested in the combination of these themes these days. Similar to what has been the case at this workshop's predecessor, FM+AM'09 [Gr09] (under the umbrella of ICFEM'09, Rio de Janeiro, Brasil, December 2009), we have had –again– a rather small number of paper submissions; see below for details of our workshop's submission and reviewing phase. A related workshop, prior to FM+AM'09, was organised in the year 2008 by Meyer et al. [M+08].

[1] http://www.agilemodeling.com/

2 Call for Papers and Response

After the permission for this workshop FM+AM'2010 had been given by the committee of the SEFM'2010 conference (see acknowledgments below), a programme committee was assembled with experts in both fields, FM and AM. Thereafter, several calls for papers were widely distributed via a number of international mailing lists as well as the workshop's website on the internet. Following those calls, five papers were submitted in June 2010. After the review process, whereby each paper got at least four reviews by different members of the Programme Committee (see below), four papers were accepted for presentation at the workshop. Their revised versions (re-submitted after review) appear in this volume of the LNI. Moreover, *Peter Gorm Larsen* was invited to present a keynote lecture, and he kindly accepted our invitation. The contents of his lecture is also represented in this book, in the form of an invited paper (which was not reviewed by the workshop's Programme Committee).

3 Programme Committee and Additional Reviewers

The following experts (in alphabetical order by surnames) from both fields of Formal Methods and Agile Methods wrote the reviews and recommendations about the papers that had been initially submitted in June 2010:

- *Scott Ambler*, Ambysoft Inc. (Canada)
- *Robert Eschbach*, Fraunhofer Institute IESE (Germany)
- *Jaco Geldenhuys*, University of Stellenbosch (South Africa)
- *Stefania Gnesi*, National Italian Research Foundation ISTI-CNR (Italy)
- *Stefan Gruner* (FM+AM'2010 Workshop Chair and Proceedings Co-Editor), University of Pretoria (South Africa)
- *Horst Lichter*, RWTH Aachen (Germany)
- *Shaoyin Liu*, Hosei University (Japan)
- *Franco Mazzanti*, National Italian Research Foundation ISTI-CNR (Italy)
- *Pieter Mosterman*, McGill University (Canada)
- *Jürgen Münch*, Fraunhofer Institute IESE (Germany)
- *Kees Pronk*, Technical University of Delft (The Netherlands)
- *Bernhard Rumpe* (Proceedings Co-Editor), RWTH Aachen (Germany), assisted by *Christoph Herrmann* and *Antonio Navarro Pérez*

- *Holger Schlingloff*, Humboldt-University of Berlin (Germany)
- *Alberto Sillitti*, Free University of Bozen/Bolzano (Italy)
- *Willem Visser*, University of Stellenbosch (South Africa)
- *Xiaofeng Wang*, LERO Institute (Ireland), assisted by *Carlos Solis*

4 Acknowledgments

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Pretoria and Aachen, September 2010

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