

2014
IEEE 27th Conference
on
Software Engineering
Education and Training
(CSEE&T)

Proceedings

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Foreword

1. Introduction

Welcome to the 27th CSEE&T, the Conference on Software Engineering Education and Training, held from April 23 to 25, 2014, at the Alpen-Adria Universität in Klagenfurt, Austria. It is the premier international peer-reviewed conference that addresses all major areas related to software engineering education, training and professionalism. Information on previous conferences can be found at <http://conferences.computer.org/cseet/>.

CSEE&T is sponsored by the IEEE Computer Society - Technical Council on Software Engineering and, in 2014, the Alpen-Adria Universität Klagenfurt as organizing institution entered into co-sponsorship. The Austrian section of IEEE serves as technical co-sponsor. The conference is primarily supported by the Alpen-Adria Universität Klagenfurt and the Carinthia University of Applied Sciences.

These proceedings contain the technical papers presented at the conference and in workshops as well as short descriptions of keynotes and further events like panels, workshops, and tutorials. They also contain the extended abstracts of talks at ASEE&T (The Academy for Software Engineering Education and Training), which runs on April 23rd (the tutorial and workshop day), as a parallel activity to some of the main program for CSEE&T.

2. Program

The core of the program is constituted as usual by the keynotes and by the contributed papers. There are two keynotes: one given by Bertrand Meyer and the other by Dennis Frailey.

Bertrand's talk, "*How to Teach Programming*", focuses on various ways of teaching programming at introductory and advanced levels. He will describe his own approach based on objects, contracts and Eiffel concluding with his experience from a decade of applying these ideas at ETH Zurich.

Dennis's talk is given in recognition of him having been presented with the Nancy Mead Award for Excellence in Software Engineering Education at CSEE&T 2013, in San Francisco. He has entitled his talk "*The Times, They Are a Changing*", and it will be a reflection on some of the issues that have arisen from the work for which he received that award.

For the contributed papers, 35 academic research papers were submitted, along with 12 short papers and 2 training and experience reports. Each submitted paper was reviewed by at least three experts in the field, and in some cases additional reviews were conducted where the outcome of the initial reviewing was not sufficiently decisive. Out of the 49 submissions 14 academic research papers, 4 short papers and one training and experience report have been selected for presentation and inclusion into the program. Thus, the overall acceptance rate has been 38 %.

These accepted papers are grouped into six sessions focusing on aspects specific to software engineering education. Session 1 deals with requirements engineering, and in particular the issue that this topic can never be fully understood just from reading textbooks or listening to lectures. Session 2 focuses mainly on aspects of design and

testing, and particularly the need to overcome the misconceptions of students that result from a programmer's perspective on aspects such as inspection or design analysis. Papers in section 3 report on the use of new technology and new methodologies for teaching software engineering, and this theme continues in session 4 on educational styles. Section 5, focusing on managerial and teamwork issues, returns to aspects of these topics where educational institutions can only provide laboratory conditions which partly match the breadth of reality. Similarly, the issues that arise when instantiating and adapting an already instantiated software process (as covered in session 6), can be pointed at but only partly simulated in an educational environment.

Alongside these submitted papers, the call for papers encouraged submission of proposals for panel sessions, for highly-collaborative workshops and for tutorial sessions. Following reviewing and feedback the final program includes one panel session, one tutorial, and three workshops. The panel will discuss *Industrial Needs and Educational Response*, and should stimulate lively discussion among the audience, while the tutorial is concerned with *Combining Software Engineering Education and Empirical Research via Instrumented Real-Client Team Project Courses*. Two of the workshops focus on specific technical topics within Software Engineering education, namely *Learning and working together as prerequisites for the development of high-quality software*, and *Technology-Driven Software Engineering Curriculum Development*, while the third is concerned more generally with improving the quality of research work within this area, and is entitled *Improving the CSEE&T Process*.

Another key element in the program is the ASEE&T, with its aim to support faculty who are relatively new to the particular challenges of teaching software engineering. This also caters for teachers of Informatics in secondary schools, who constitute an important target group, as in Austria Informatics is a subject which students can take till their school leaving exam (*Matura*), which grants them the right to enter tertiary education. Unfortunately, only a few teachers are qualified to teach Informatics at the breadth of Computer Science and with a realistic background on Software Engineering. It is hoped that the ASEE&T will make some contribution towards meeting this need for improving the teaching of the subject in secondary schools. To achieve this aim, it will include topics such as the use of the SWEBOK, the teaching of semantic technologies, modules and environments for teaching software engineering, the risks that can arise in software engineering class projects, and issues specific to master's level degree programs for employed students.

For the rest of the conference program, there are some social events which are essential to the success of CSEE&T, such as the welcome reception on the Wednesday and the Conference Dinner on the Thursday. Here a particular highlight of the meeting is the bestowal of the Nancy Mead Award, which will be presented at the Conference Dinner.

3. Acknowledgements

Preparing a conference like CSEE&T is a task that requires the help of many hands and bright, inspiring, but also critical heads. We are grateful to all those, who contributed – mainly behind the scenes – to the success of the 27th CSEE&T.

Foremost, we are grateful to all the authors who submitted their work, irrespective of whether their particular submission has been included in the program or not. On the other side of this medal are the members of the program committee. Authors and PC members

seemingly have contradictory roles, but in reality both groups have the common role of shaping the conference and leading to a timely high-quality program.

Particular thanks go to those colleagues who resumed a special role, leading one of the committees that allowed conducting a distributed development effort to be coordinated by the general chairs.

The members of the conference steering committee play a distinct but very important role. Their long-term involvement ensures the continuation of this well established conference over years and into the future. They shoulder also the responsibility that the scientific standards of the conference are maintained while the specific issues to be discussed change and evolve over time.

Special thanks go also to the members of the organizing team and the web-team. The experience of Annette Lippitsch in serving as host and head of the organization and Markus Künstler's and Markus Maier's technical skills helped a lot.

We would also like to thank the team of Conference Publishing Consulting which assembled all the individual contributions into a set of proceedings and arranged for their distribution and their upload into the IEEE digital library. Without the work done by this team you would not be reading this.

Finally, in our aim to keep the registration fee as low as possible, quite a number of organizations were asked for help. Those who contributed, be it financially or in other ways, deserve to be mentioned in deep gratitude. Listed in alphabetical order they are: Alpen-Adria Universität Klagenfurt, Austrian Computer Society (OCG), Carinthia University of Applied Sciences, the Federation of Industry in Carinthia (Industriellenvereinigung Kärnten), Förderverein Technische Fakultät an der Universität Klagenfurt, Kärnten Convention, Kärntner Universitätsbund, Mazda Austria, the Province of Carinthia (Land Kärnten), STW (Public Utility Company Klagenfurt).

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