

Editorial: ASE 2010 Conference trip report

Robert J. Hall

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In this dual-purpose editorial, I will first introduce this issue's contributions, and then I will give a brief summary of my experiences at the 2010 ASE Conference. Please feel free to drop me a line with comments on any aspect of this editorial.

This issue's articles

This issue has three interesting and significant contributions.

- Synthesizing schedulers to meet quality of service (QoS) requirements is a problem long known to be difficult. Simultaneously satisfying *multiple* sets of QoS requirements is even more difficult. In “A model-based approach for multiple QoS in scheduling: from models to implementation”, Kloukinas and Yovine give us significant first steps in meeting this challenge, concentrating here on the requirements of deadlock-freedom and timeliness.
- An open problem in software product lines has been that even though the product line view makes *generating* tens to hundreds of product variations easy, it has remained complex to verify each one. In “Compositional model checking of software product lines using variation point obligations” Liu, Basu, and Lutz show how to reuse intermediate results, called variation point obligations, from earlier model checking runs when subsequently verifying other product line instances. This has potential to significantly reduce the effort in verifying new product line instances.
- Another basic open problem in software product lines has been how to model the product line and its variabilities in a way that can be applied to many different

R.J. Hall (✉)
AT&T Labs Research, Florham Park, NJ 07932, USA
e-mail: Bob.ASEJ@gmail.com

domains. The authors have created a method and supporting tool, DOPLER, that achieves this goal. In “The DOPLER meta-tool for decision-oriented variability modeling: a multiple case study” Dhungana, Grünbacher, and Rabiser present the method and tool but then also describe a case study involving four significantly different and interesting industrial examples, showing the usefulness and flexibility of the approach and tool.

The 25th ASE Conference

This year represented an auspicious milestone in the series: the 25th conference. The series started in the early 1980s with the Knowledge-based Software Assistant (KBSA) Workshops leading to the first KBSA conference in 1986. These evolved to the Knowledge-based Software Engineering Conferences in the early 90s, and then to the Automated Software Engineering conferences in 1997.

ASE 2010 was held 20–25 September in Antwerp, Belgium, with General Chair Charles Pecheur. The conference had a number of ways of commemorating the anniversary. First, a hardcopy of the original KBSA Report (“Report on a knowledge-based software assistant” by Green, Luckham, Balzer, Cheatham, and Rich) was reprinted, along with some new front matter describing the history of the project and the conference series. This was given to all registrants. The Report used a metaphor of software development being like a diamond, with different aspects (requirements, design, coding, verification, etc) being “facets” of the diamond. Like cutting diamonds, one must address all the facets of software development in order to reach a high level of quality. Antwerp being the center of the world’s diamond trade made this all the more appropriate. The weather was overall quite nice, until the one time this author had to wear a coat and tie, at which point we had thunderstorms. Fortunately, in a remarkable feat of prescience, the conference organizers had included commemorative “ASE 2010” umbrellas in the conference bags, so I was able to make it to and from the banquet without serious dampening.

Another major commemorative event of the conference was the retrospective keynote address given by Cordell Green of Kestrel Institute. Being one of the authors of the KBSA Report and a Fellow of Automated Software Engineering, he was well positioned to give the audience a whirlwind history of the series and to show many of the highlights and ways in which results from our community have grown and influenced thought in other areas.

This conference saw the first ASE Most Influential Paper award. Established new this year by the Steering Committee, this award acknowledged the paper from among those at the conferences 14, 15, or 16 years earlier that has had the most significant influence. This year’s award was presented to “Extending design environments to software architecture” by Robbins, Hilbert, and Redmiles (KBSE’96). This year’s banquet also saw an acknowledgment of the designation of Robert Balzer as the latest Fellow of Automated Software Engineering.

The technical content of this year’s conference was of its usual high quality and interest, and speaks for itself. The three distinguished papers give a small taste of that quality:

- A really excellent contribution came from Gibiec, Czauderna, and Cleland-Huang, “Towards mining replacement queries for hard-to-retrieve traces”, on a new approach to helping tools retrieve requirements traces by automatically reformulating the input query to improve performance. The really clever thing about this is they use the Internet as a huge source of information and use data mining to drive reformulation. This seemed to be a particularly effective use of data mining and shows the power of a huge (albeit unstructured) knowledge store.
- Another interesting paper, “Vdiff: a program differencing algorithm for Verilog HDL” by Duley, Spandikow, and Kim, deals with the problem of program differencing for Verilog HDL, which is a well known hardware description language. The problem here is that differencing approaches usually assume sequential behavioral semantics, whereas VHDL fundamentally describes concurrent execution behaviors. The Vdiff tool takes this semantic difference into account and results in dramatic improvements in precision and recall performance.
- In “Towards automatically generating summary comments for Java methods”, Sridhara, Hill, Muppaneni, Pollock, and Vijay-Shanker describe a technique for automatically generating complete and concise summary comments from the signature and code body of a Java method. The efficacy of their approach is shown in a case study including human feedback.

Finally, in their annual meeting held at the conference, the ASE Steering Committee decided several issues affecting the series. They voted to amend their charter to increase the maximum SC membership to 25 persons from the old limit of 20. Given the growth of the conference and community in the time since the charter was established, it was felt this increase best allows both bringing in fresh viewpoints and maintaining a long term organizational perspective. The SC also voted to hold ASE 2013 at NASA Ames Research Center in Mountain View, California, with Ewen Denney of NASA Ames as General Chair. Thus, the next three conferences will be in November 2011 in Lawrence, Kansas, USA (Perry Alexander), September 2012 in Essen, Germany (Michael Goedicke), and November 2013 in Mountain View, California, USA (Ewen Denney).