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Editorial

Guest editors' introduction to the 3rd issue of Experimental Software and Toolkits (EST): A special issue on Academic Software Development Tools and Techniques (WASDeTT 2008)

This is already the third special issue on Experimental Software and Toolkits (EST) of Elsevier's Science of Computer Programming. As such it has truly become a forum where academic software engineers can share their systems with fellow researchers, so that others can build on their research and tools, and reproduce similar or conduct other experiments. EST not only offers a means to authors to publish their systems and get the academic credits, it also offers a way of archiving the developed systems for the future. This is an improvement over conference and workshop tool demonstrations, where the system can be seen in action but typically not downloaded, tested or used by others. It differs from publishing the system in the open source community, because independent referees from the academic community has performed a quality review on the published systems and papers.

As announced in the second special issue, this third special issue of EST was associated with WASDeTT, the first international Workshop on Academic Software Development Tools and Techniques, which took place on July 8, 2008 in Paphos, Cyprus. Like EST, the motivation for this workshop was the observation that tools and tool building play an increasingly important role in applied computer science research. The tangible results of academic research are often embodied in a tool. Even though tool building is a popular technique to validate research (e.g., proof-of-concept prototyping followed by user studies), it is neither simple nor cheap to accomplish. Given the importance of tool building and the significant cost associated with it, the workshop gathered interested researchers to share their tool building experiences and to explore how to build tools more effectively and efficiently.

In addition to traditional position papers where the participants exposed their vision on tool-related issues, the workshop also solicited actual tool submissions and offered participants the possibility of presenting their toolkit and how it was built. From the contributions of the second kind, based on the quality of the submitted tool papers and their demonstrations during the workshop, a selection of the most mature tools was invited to submit to this special issue. The authors were requested to resubmit an article of 15 to 25 pages, as opposed to the 5 to 10 pages for the original workshop contribution. These articles, as well as their associated tools, underwent a thorough peer-reviewing process by the WASDeTT program committee, extended with a few extra referees. In the end, of the 15 contributions originally submitted to the workshop, about 10 were finally invited to the special issue, of which only 5 were finally accepted for publication.

In addition to reviewing the quality of the tool description paper (relevance, motivation, application area, objectives and quality of English), we asked the referees to actually try to install and use the software system as well. They reviewed the quality of the system according to various criteria:

- ease of installation,
- quality of user and installation documentation,
- ease of usage,
- availability and quality of examples and tutorials provided,
- applicability of the system to the intended domain,
- quality of code (optional).

Although no strict restrictions were put on the kinds of tools that could be submitted, most of the tools submitted were programming language-related. This bias can be explained by the collocation of the workshop with ECOOP 2008, the annual European Conference on Object-Oriented Programming. Amongst the accepted toolkits we had *CScout*, a refactoring browser for the C language; *IntensiVE*, a toolsuite for documenting and verifying structural regularities in (mostly) object-oriented programs; *Rigi*, the well-known reverse engineering environment; the *Small Project Observatory*, a tool for visualising version

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repositories for multiple systems in parallel; and *Churrasco*, a tool for supporting collaborative software analysis using a web front-end.

For more information on the workshop we refer to the workshop report in the workshop reader [3], to the workshop webpages [2], or to the "Tools of the Trade" column on our workshop which appeared in IEEE Software [1]. A full list of all original workshop submissions is available on the workshop webpage.

To conclude this introduction, we are happy to announce that concrete plans have already been made for a fourth special issue on Experimental Software and Toolkits (EST), again associated with a WASDeTT workshop. Indeed, the third edition of our Workshop on Academic Software Development Tools and Techniques will be collocated with ASE 2010, the 25th IEEE/ACM International Conference on Automated Software Engineering, during the week of September 20, 2010 in Antwerp, Belgium. After the two previous editions of the workshop, which attracted many contributions in the area of software reengineering, development, maintenance, evolution and programming languages, it was our deliberate choice to collocate the third edition of WASDeTT with ASE 2010, to broaden the scope of the workshop again to the entire software engineering field.

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