Message from the General Chair

Welcome to SSBSE 2009, the 1st International Symposium on Search Based Software Engineering. I would like to take this opportunity to explain a little about SSBSE and its motivation and organisation and to thank those involved.

SSBSE 2009 is a unique event that combines aspects of a conference, a workshop and a retreat. Through this unique blend of attributes SSBSE seeks to nurture and develop the growing international research community working on Search Based Software Engineering. It is envisaged that SSBSE will become an annual event, sometimes standing alone and sometimes running alongside an existing conference in co-location to promote and encourage cross fertilization. This being the first SSBSE, the organising committee and I have paid particular attention to community building and outreach to the wider Software Engineering community.

The recent rapid growth in Search Based Software Engineering (SBSE) publications can be seen from the bar graph below, which is taken from the repository of papers on SBSE at

http://www.sebase.org/sbse/publications/

The repository includes analysis of topics covered, growth trends (such as this) as well as a searchable database of all publications on SBSE.
As this graph demonstrates there is a rapidly growing increase in interest in SBSE. The SBSE philosophy is that Software Engineering often considers problems that involve finding optimal or near optimal balances between competing and potentially conflicting goals. There is often a bewilderingly large set of choices and finding good solutions can be hard. For instance, the following is an illustrative list of software engineering optimization questions:

- What is the smallest set of test cases that cover all program branches?
- What is the best way to structure the architecture of the system?
- Which requirements best balance cost and customer satisfaction?
- What is the best allocation of resources to this development project?
- What is the best sequence of refactoring steps to apply to this system?

Answers to these questions might be expected from the literature on testing, design, requirements engineering, software engineering management and refactoring respectively. It would appear at first sight, that questions such as these involve different aspects of software engineering, that they would be covered by different conferences and specialized journals and that they would have little in common.

However, all of these questions are essentially optimization questions. As such, they are typical of the kinds of problem for which SBSE is well adapted, and with which each has been successfully formulated as a search based optimization problem. SBSE therefore re-unites areas of Software Engineering that have long been studied in isolation. It seeks to overcome the potential for 'silo mentality' that the necessary expansion of Software Engineering has forced upon the growing Software Engineering community.

Through SBSE, many cross-cutting concerns that apply to several otherwise disparate sub-areas of Software Engineering can be considered together. These different areas are often united by SBSE nomenclature, such as the form of representation or the properties of the search landscape. It is this generic nature of SBSE that is one of its attractions and one of the key motivations for the SSBSE 2009 symposium.

The symposium will allow researchers and practitioners to explore commonalities in the underlying optimization problems and to generalize from these, allowing the development of deeper theoretical foundations and cross fertilization of solution methods and techniques. The symposium will cut across traditional software engineering sub-discipline boundaries with the common goal of seeking formulations that facilitate optimization.

Though this is the first International Symposium on Search Based Software Engineering, it builds upon a longer history of workshops, tracks, and special issues on SBSE. In December 2001, a special issue on Search Based Software Engineering of the Journal of Information and Software Technology was published by Elsevier. The papers reflected the (already, at the time) wide diversity of work within the embryonic field of SBSE. The inclusion of an overview paper and a survey paper by Darrell Whitley made the special issue a self-contained 'booklet' describing the nascent area of Search-Based Software Engineering.

In July 2002, the GECCO conference held its first track on Search-Based Software Engineering. The program chair for the track was Joachim Wegener. The adoption of SBSE as a track in its own right by the GECCO organisers demonstrated the high regard the international Evolutionary Computation community has for the new application area of SBSE. The SBSE track of the GECCO conference is now in its 7th year.

In 2003 there was an informal UK workshop on SBSE, also held here, at the Cumberland Lodge. This event had over 30 attendees from the UK, Europe, USA and New Zealand. The workshop proved that there was a growing international community of researchers who were prepared to travel to a standalone workshop (not co-located with any other event). In some ways, this was a pre-cursor to the SSBSE symposium. It is to be hoped that the lively discussion-centric format of the workshop will be retained for the symposium.
In 2007 there were two workshops on SBSE held in London, one at UCL as part of GECCO 2007 and one in the CREST centre at King's College, London. Despite being held on a Sunday in what there was of a UK summer in 2007, the CREST SBSE workshop attracted 39 researchers and practitioners of SBSE from many different locations, including North America and Europe. Presentations from the event are available on the web, under the auspices of the ASTReNet http://www.dcs.kcl.ac.uk/staff/zheng/astrenet.

The evidence for the future growth of SBSE research is also strong and promising. In October 2008, a special issue of the Journal Computers and Operations Research (Volume 35, issue 10) on SBSE appeared edited by Walter Gutjahr and Mark Harman. This is significant because the journal is an OR journal and so the publication of this special issue reflects the growing interest in SBSE, not just from the Software Engineering community, but also from the optimization community as well. Also in 2008, there was a special issue of the Journal of Software Maintenance and Evolution edited by Giulio Antoniol, Massimiliano Di Penta and Mark Harman.

In 2009 there will be a special issue of IEEE Transactions on Software Engineering, edited by Afshin Mansouri and Mark Harman, for which the call is now closed and there is a current call for papers for a special issue of Software – Practice and Experience on SBSE, to be edited by Iain Bate and Simon Poulding. There will also be a special issue of the Journal of Empirical Software Engineering featuring extended selected papers from SSBSE 2009.

As can be seen the history of events and activities upon which SSBSE builds, stretches back over more than five years, while the future of this exciting field of study is assured by the continuing development of events and special issues devoted to SBSE.

Bringing about the first international Symposium on SSBSE has involved a lot of work from a lot of very talented and dedicated people to whom I would like to offer thanks in this message.

I would like to pay special thanks to Massimiliano Di Penta and Simon Poulding, the program co-chairs for all their work in bringing this imaginative and exciting program together. They also worked behind the scenes on many aspects of the event, including the proceedings, and supported by Per Kristian Lehre, David White and Paul Emberson the publicity and excellent website for SSBSE 2009. I would also like to extend a warm thanks to the program committee, whose expertise and rigour ensured high quality reviewing for the papers submitted.

Myra Cohen not only managed the PhD track for SSBSE 2009, but also was closely involved with the program chairs in the construction of the program for the event.

The industrial sponsors Berner and Mattner in Berlin and Sogeti UK in London have helped SSBSE 2009 to maintain strong and close links to industry and to reduce the cost of the event to the participants. Their involvement is a very welcome indication of industrial interest and uptake of SBSE and their sponsorship is particularly valued in the difficult economic climate in which we all now find ourselves.

As well as industrial sponsorship, SSBSE 2009 also received the kind and valuable support of the Engineering and Physical Sciences Research Council (the EPSRC). The EPSRC is the UK government funding body for the sciences and engineering.

I am very grateful to the international community for their participation and I would like to extend a very warm welcome to all our visitors to SSBSE. I hope that you find the technical content stimulating and the environment perfect for establishing and deepening research collaborations.

SSBSE 2009 has three outstanding keynote speakers, Enrique Alba, Lionel Briand and David Goldberg. It is also fortunate to have a panel of internationally leading Software Engineers who will provide feedback through the experts’ panel. I would like to welcome and thank our three illustrious keynotes and our five expert panellists: Norman Fenton, Anthony Finkelstein, Paola Inverardi, Mary Lou Soffa and Ian Sommerville.
A complex event such as SSBSE 2009 cannot be organised without the help of a committed team of organisers. The staff at the Cumberland Lodge have been marvellous in their dedicated assistance. The event would not be nearly so appealing without their support, kindness and professionalism. I would like to extend a very warm thanks to Matthew Hancock, Jane Bailey and all the staff at the Cumberland Lodge for their hospitality.

The staff at the IEEE have also been very helpful in using their resources to produce the proceedings. I would like to thank Andrea Thibault-Sanchez and Silvia Ceballos and all the staff at the IEEE for this support. I am also very grateful to Lionel Briand, the Editor in Chief of the Journal of Empirical Software Engineering for agreeing to a special issue of extended selected papers from SSBSE 2009.

The local arrangements and planning of the event could not have been achieved without the help of Zheng Li and Jian Ren.

Thank you all very much for your hard work and support.

Next year, SSBSE 2010 will be held in Italy. The organising committee will be Lionel Briand, John Clark, Max Di Penta and Simon Poulding. After 2010, SBSE will seek co-location with other leading Software Engineering conferences. We plan to establish a charter for the SSBSE symposia series and a steering committee. If you would like to be involved, please talk to any of the organising committee for SSBSE 2009 or SSBSE 2010.

I hope you have a very productive, stimulating and optimal symposium at this and future symposia.

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