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Selected Papers from SBLP 2005: The 9th Brazilian Symposium on Programming Languages

J.UCS Special Issue

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Over the last decades there were significant changes in the way programming languages are defined, implemented and used. These changes are expected, as programming languages are the tools that other areas of computer science use to achieve their goals.

The Brazilian Symposium on Programming Languages (SBLP) is a series of annual conferences promoted by the Brazilian Computer Science Society. SBLP 2005 was organized by the Computer Science Department (DCC) of the University of Pernambuco (UPE).

SBLP 2005 was the 9th in the series of SBLP events. Previous symposia were held in Belo Horizonte (1996), Campinas (1997), Porto Alegre (1999), Recife (2000), Curitiba (2001), Rio de Janeiro (2002), Ouro Preto (2003) and Niteroi (2004).

The Program Committee selected 18 papers from a total of 52 submissions. Authors of submitted papers came from 14 different countries. Each paper was reviewed by at least four Program Committee members, who were often assisted by other referees. This special issue contains a selection of 10 regular papers and two invited papers, corresponding to the two invited talks.

The first two papers in this issue correspond to the event's invited talks. In the first one, Peter Mosses from the University of Wales – Swansea (UK), explores a concrete syntax-independent way of specifying programming language constructors. In the second paper, Mary Sheeran fom Chalmers University of Technology (Sweden), presents a technique for realistic hardware simulation using functional programming.

The rest of the papers are organized by themes:

The Lua Programming Language is the subject of two papers. In the first one, Roberto Ierusalimschy from PUC-Rio (Brazil), Luiz Henrique de Figueiredo from IMPA (Brazil) and Waldemar Celles from Tecgraf/PUC-Rio (Brazil) discuss the main novelties of the implementation of Lua 5.0, compared to Lua 4.0. A second paper, by Nélio Cacho, Thaís Batista and Fabrício Fernandes, all from UFPR (Brazil) describe an aspect-oriented infrastructure to handle dynamic aspect-oriented programming in Lua.

One paper of this issue is devoted to ***Compiling Techniques***. In this paper, Marcus Amorim Leal and Roberto Ierusalimschy, both from PUC-Rio (Brazil) use an operational approach to develop a new abstract model that explicitly represents memory management actions in a garbage-collected programming language based on the lambda-calculus.

Two papers in this selection deal with ***Languages for Mobile and Distributed Computing***. In the first one, Cheikh Ba from University of Tours at Blois (France), Marcos Carrero from Federal University of Paraná (Brazil), Mírian Halfeld from University of Tours at Blois (France) and Martin A. Musicante from Federal University of Paraná (Brazil), present PEWS, a language for the specification of behaviour for web services interfaces. In the next paper, André Du Bois, from Catholic University of Pelotas (Brazil), Phil Trinder, from Herito-Watt University (UK) and Hans-Wolfgang Loidl from Ludwig-Maximilians-University (Germany), gives a complete description of *m*Haskell, an extension of Concurrent Haskell for mobile computation.

Virtual Machine Code Generation is the topic of three papers in this issue: Monique Monteiro, Mauro Araújo, Rafael Borges and André Santos from Federal University of Pernambuco (Brazil), propose a compilation strategy for non-strict functional languages targeting the .NET Platform. Next, Fabio Mascarenhas and Roberto Ierusalimschy from PUC-Rio (Brazil) present an approach for running scripts written in Lua, a scripting language, on the .NET Common Language Runtime. In a third paper of this topic, Anderson Faustino and Vitor Costa, from Federal University of Rio de Janeiro (Brazil) compare the performance of a just-in-time (JIT) compiler with that of a traditional compiler, for Java. Their experiments show that a JIT compiler achieves better overall performance than the traditional one.

The last two papers in this issue have ***Functional Programming*** as their main subject. Tarmo Uustalu from Institute of Cybernetics (Estonia) and Varmo Vene from University of Tartu (Estonia) propose a novel discipline for programming stream functions and for the semantic description of stream manipulation languages based on the observation that both general and causal stream functions can be characterized as coKleisli arrows of comonads. In the last paper, Marcelo d'Amorim and Grigore Roşu from University of Illinois Urbana Champaign (USA) describe the formal semantics of Scheme as an equational theory in the Maude rewriting system.

As the editors of these special issue, we would like to thank everyone who contributed to the success of the symposium and to its scientific merit. In particular, we thank the Program Committee members for their demanding and responsible work, the referees for their careful reading of all the submissions, the invited speakers for accepting our invitation to share with us their knowledge, the authors of the submitted papers, the editorial team of J.UCS, represented by Dana Kaiser and (last but not least) the Organizing Committee for their efforts in making the venue at Recife a success.

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