Editorial

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Readers are welcome to the fourth and final issue of Volume 19 of the Journal of the Brazilian Computer Society, our last issue prior to the upcoming move to the SpringerOpen platform in 2014. This issue brings us nine original papers and three survey papers on a wide variety of topics in theoretical and applied Computer Science.

The first two contributions are revised and extended versions of previous papers that appeared at ENIA 2012, the Brazilian National Meeting on Artificial Intelligence (http://www.ppgia.pucpr.br/~enia/). The paper by José Eduardo Ochoa Luna, Kate Revoredo and Fabio Gagliardi Cozman deals with link prediction on social networks. They propose and evaluate link prediction algorithms that use a probabilistic ontology to enhance the analysis of the domain and to handle uncertainty. The paper by authors Paulo Drews- Jr., Rafael G. Colares, Pablo Machado, Matheus de Faria, Amália Detoni and Virgínia Tavano describes an approach for successful automatic or semi-automatic classification of microalgae organisms. Their solution relies on semi-supervised and active learning algorithms based on Gaussian mixture models.

The following paper, by authors Rodrigo Ribeiro, Carlos Camarão and Lucília Figueiredo, deals with constraint set satisfiability and simplification of type class constraints in the Haskell programming language. They introduce a termination criterion and terminating algorithms for constraint simplification and improvement.

Rodrigo Ribeiro, Lucília Figueiredo and Carlos Camarão present in another paper an axiom-free, fully constructive Coq formalisation of a λ-calculus with trust types. Their formulation and presentation of the trust λ-calculus adopt a small-step semantics and a Church style type system, supporting concise proofs of type soundness, erasure and simulation theorems.

In order to satisfy requirements of software process improvement frameworks and prepare to implement statistical process control, software organizations must perform appropriate measurements. Authors Monalessa Perini Barcellos, Ricardo de Almeida Falbo and Ana Regina Rocha describe a strategy to assist software organisations that need to evaluate and adapt their measurement repositories in this scenario.

The paper by Lesandro Ponciano, Nazareno Andrade and Francisco Brasileiro presents results from a comprehensive analysis of BitTorrent caching, based on traces of user behavior obtained from four popular BitTorrent sites. Their contribution enhances the knowledge on specific caching design issues that affect BitTorrent traffic.

The contribution by Luciano J. Chaves, Edmundo R. M. Madeira and Islene C. Garcia deals with wireless local area networks. They propose CogTRA, an enhanced novel cognitive transmission rate adaptation mechanism designed to work both in stable and in dynamic environments and also to self-adjust parameters to suit the environment.

Said S. Adi and Carlos E. Ferreira introduce a novel comparative-based gene prediction program. They propose a new type of alignment, called syntenic global alignment, capable of satisfactorily handling sequences that share regions with different rates of conservation. The authors also describe a dynamic programming algorithm to compute the best syntenic global alignment of two given sequences.

Claudia de O. Melo, Viviane Santos, Eduardo Katayama, Hugo Corbucci, Rafael Prikladnicki, Alfredo Goldman and Fabio Kon review the evolution of the agile software development movement in Brazil, outlining its history in academia and industry. They describe current educational initiatives,

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discuss the impact of the national research on agile development and present a report on the state-of-the-practice in the Brazilian information technology industry.

The three survey papers are, respectively, on computational processing of natural languages, on biometry with keystroke dynamics, and on automatic music transcription, i.e. the problem of detecting, without human interference, the musical gestures required to play a particular musical piece.

In the first survey, Sandra Collovini de Abreu, Tiago Luis Bonamigo and Renata Vieira review the state-of-the-art of research on relation extraction in free texts. They address the major advances and challenges in the area, placing special attention to the literature on tools for processing texts written in Portuguese, which need further progress.

Paulo Henrique Pisani and Ana Carolina Lorena contribute a systematic review on keystroke dynamics, or the problem of recognizing users by their typing rhythm. A systematic review adopts a rigorous procedure by defining a formal review protocol. In their paper, authors discuss the process involved in conducting the review along with the results obtained in attempting to identify the state of the art on keystroke dynamics.

Finally, the overview on automatic music transcription in the survey paper by Tiago Fernandes Tavares, Jayme Garcia Arnal Barbedo, Romis Attux and Amauri Lopes is aimed at both serving as an introduction to the theme and as a resource for developers of new solutions. Authors discuss the underlying techniques and heuristic assumptions derived from music knowledge that provide the basis to relevant systems reported in the literature.

This is also the last issue of JBCS published under my responsibility as Editor-in-Chief. I wish to express my gratitude to our collaborators: authors who contributed papers and the many people who acted as reviewers along the past years—their commitment has certainly contributed to the keep the high quality standards expected by the research community. I also take the opportunity to thank readers for their interest and support to JBCS, as well as to the Editorial Board members and the Brazilian Computer Society. Finally, I welcome the new Editor-in-Chief, Prof. Celso Carneiro Ribeiro, and wish him every success in his new role.