CBSOFT'25

XVI CONGRESSO BRASILEIRO DE SOFTWARE: TEORIA E PRÁTICA

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PROCEEDINGS

XXIX Brazilian Symposium on Programming Languages

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Preface

SBLP has been promoted by the Brazilian Computer Society since 1996 and provides a forum for researchers, students, and professionals to present and discuss ideas and innovations in the design, definition, analysis, implementation, and practical use of programming languages. Since 2010, SBLP has been organized in the context of the Brazilian Conference on Software: Theory and Practice (CBSoft) and other events on Computer Science and Software Engineering. For the 2025 edition of SBLP, the Program Committee was made up of 35 members spanning 9 different countries. The symposium received 27 submissions from at least 4 countries. Of these, 13 were accepted to fill 4 technical sessions. Three reviewers evaluated all papers based on their quality, originality, and relevance to the symposium. The evaluation involved 4 external reviewers invited by the PC members. We are delighted that the SBLP program has included two outstanding members of the programming language community: a keynote talk by Sandrine Blazy from the University of Rennes, France, and a keynote talk by Rafael Dueire Lins from the Universidade Federal de Pernambuco, Brazil. We would like to thank the contribution of all authors who, through their efforts, helped advance the success of SBLP and the state of programming language concepts and systems; PC members and external reviewers for dedicating time and effort towards producing good reviews in due time; members of the Organizing Committee of CBSoft 2025 for their kind and prompt reply to all sorts of questions and handling of all tasks; SBC-OpenLib for their help in producing the SBLP proceedings; as well as chairs of previous editions of SBLP for their valuable advice. We hope you enjoy the technical program of SBLP 2025.

Keynotes

Rafael Dueire Lins - Universidade Federal Rural de Pernambuco and Universidade Federal de Pernambuco, Recife, Brazil

Title: When re-boot unfreezes a computer

Abstract. A computer may block or freeze due to a wide variety of hardware or software problems. If rebooting the machine unfreezes it, most possibly the machine ran out of memory. This talk looks at the evolution of dynamic memory management and provides advice to avoid computer freezing.

Short bio. Rafael Dueire Lins holds a B.Sc. degree in Electrical Engineering (Electronics) from the Federal University of Pernambuco, Brazil (1982) and a Ph.D. degree in Computing from the University of Kent at Canterbury, UK (1986). Lins published several books, amongst them the best-seller "Garbage Collection: Algorithms for Dynamic Memory Management", (John Wiley Sons , UK,1996) translated into Chinese (Mandarin) and published by ChinaPub in 2004. His pioneering contributions encompass the creation of the Lambda-Calculus with explicit substitutions, the first general and efficient solution to cyclic reference counting in sequential, parallel and distributed architectures. Lins is the pioneer researcher in document engineering and digital libraries in Latin America. Lins is a founding member of the doctoral programme in Computer Science (1990) and in Electrical Engineering (2000) both at Federal University of Pernambuco, Brazil. Lins

is currently Senior Researcher of CNPq (Brazil) and Associate Editor of Springer Nature in Computer Science.

Sandrine Blazy - University of Rennes, France

Title: From operational semantics to verified compilation: mechanized reasoning on realistic languages in the CompCert compiler

Abstract. A formally verified compiler ensures that compilation does not introduce any bugs in programs. In the CompCert C compiler, this correctness property requires reasoning about realistic languages by using a semantic framework. This talk explains how this framework has been effectively used to turn CompCert from a prototype in a lab into a real-world compiler. More generally, this approach opens the way to the verification of software tools involved in the production and verification of software.

Short bio. Sandrine Blazy is professor at the University of Rennes and deputy director of the IRISA CNRS laboratory. Her research interests include verified compilation with the CompCert C compiler, formal semantics, deductive verification, static analysis and software security. CompCert has won several awards, including the ACM software system award (2021), the ACM SIGPLAN Programming Languages Software Award (2022). Sandrine Blazy received in 2023 the CNRS silver medal.