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PROCEEDINGS

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Preface

This volume contains the proceedings of the 10th Brazilian Symposium on Systematic and Automated Software Testing (SAST 2025). This year, for the tenth time, the symposium is part of the Brazilian Conference on Software: Theory and Practice (CBSoft 2025), which integrates three other important symposia: the Brazilian Symposium on Software Engineering (SBES), the Brazilian Symposium on Programming Languages (SBLP), and the Brazilian Symposium on Software Components, Architectures, and Reuse (SBCARS). Software testing is one of the most popular software verification and validation techniques used currently in the software industry. When applied effectively, this technique can provide essential evidence regarding the quality and reliability of a software system. The current scenario shows an increasing dependency on software in daily activities and industrial environments, resulting in a growing need for fast and correct answers of such software systems, which are often critical, pervasive, persistent, mobile, distributed, real-time, embedded, and adaptive. This need drives the development of techniques, criteria, and supporting tools for software testing, considering the different application domains and programming paradigms. After its debut in 2016, the Brazilian Symposium on Systematic and Automated Software Testing (SAST) will promote its tenth edition in 2025, although it has existed since 2007 under the name of the Brazilian Workshop on Systematic and Automated Software Testing. SAST is the main scientific conference on software testing in Brazil. Its goal is to promote an annual forum to discuss issues on the systematization and automation of the software testing activity, promoting interaction between researchers and industry to strengthen cooperation and innovation in this vital area of software development. In the 2025 edition, SAST received 45 paper submissions. The Program Committee evaluated each submission, ensuring that every paper received at least three reviews. Following thorough discussions, 23 papers were accepted: 15 for the research track and 8 for the industrial track. The papers cover several exciting topics regarding software testing for various paradigms. This issue also includes one high-quality keynote speech: Dr. Márcio Ribeiro, from Federal University of Alagoas (UFAL), Brazil, presenting the keynote entitled “An LLM a Day Keeps Manual Testing OK: Using Large Language Models to Generate and Maintain Manual Tests”. The realization of SAST 2025 was only possible due to the active and engaged participation of several enthusiasts. We thank all Program Committee members for their interesting comments and suggestions for improving the quality of the submitted papers. We also thank all the members of the Steering Committee, external reviewers, and the Organization Committee. The reliable and prompt support from the General Chairs was crucial to accomplishing SAST 2025. We hope the symposium contributes to the expansion and consolidation of the area of software testing in Brazil.

Keynote

Márcio Ribeiro - Universidade Federal de Alagoas, Brazil

Title: An LLM a Day Keeps Manual Testing OK: Using Large Language Models to Generate and Maintain Manual Tests

Abstract. Manual tests, tests which are written in natural language, are essential in contexts where automated testing is infeasible or insufficient. However, they often suffer from incompleteness, ambiguities, outdated steps, and test smells, which can increase maintenance costs and reduce reliability. In this talk, we will explore applications of how Large Language Models (LLMs) can assist in the generation and maintenance of manual tests. We will discuss and show techniques to create tests from requirements and from screenshots of system interfaces, as well as strategies to update tests when requirements or user interfaces change. We will also focus on how LLMs can help with the task of removing test smells from manual tests. The talk will focus on real-practice manual tests and will also discuss open challenges and research opportunities.

Short bio. Márcio Ribeiro is an Associate Professor in the Computing Institute at Federal University of Alagoas. He holds a Doctoral degree in Computer Science from the Federal University of Pernambuco (2012). He was the recipient of the ACM SIGPLAN John Vlissides Award (2010). In addition, his PhD thesis was awarded as the Best in Computer Science of Brazil in 2012. He has experience in Software Engineering and Artificial Intelligence. Ribeiro was the President of the Special Interest Group on Software Engineering (CEES) of the Brazilian Computer Society (SBC) in 2021-2022. His main research interests are Configurable Systems, Empirical Software Engineering, Software Testing, and Refactoring. Ribeiro has published papers in top-ranked conferences and journals such as ICSE, ESEC/FSE, ECOOP, PLDI, AOSD/Modularity, ICSME, SPLC, GPCE, ICPC, ISSRE, TSE, IST, and JSS. In 2014, Ribeiro was the General Chair of the most important academic event on Software of Brazil, CBSoft 2014 (https://cbsoft.sbc.org.br/2014/). He designed and created the "Aglomerações" app, an app to register and track agglomerations. The app pioneered the idea in which the user registers agglomerations during the COVID-19 pandemic in Brazil. He is the coordinator of the Research Center on Engineering and Systems (EASY) at the Federal University of Alagoas (https://easy.ufal.br). The center has executed several R&D&I projects. Some of the projects are used in all Brazilian states and have brought savings of millions of reais to Brazilian public departments. The center also executes a telehealth project in the context of the Brazilian state of Alagoas, in partnership with the Ministry of Health of Brazil.