



CibSE2024

XXVII Congreso Iberoamericano en Ingeniería de Software
XXVII Congresso Ibero-Americano em Engenharia de Software
XXVII Ibero-American Conference on Software Engineering

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Preface

On behalf of the CibSE 2024 Organizing Committee, we proudly present the proceedings of the 27th Iberoamerican Conference on Software Engineering (CibSE 2024). CibSE has provided a forum to present recent advances in the practices for engineering software-intensive systems since 1998. This year, the conference was hosted by the Pontifical Catholic University of Paraná, Brazil, which was a perfect scenario for making this high-quality event possible.

In a society that increasingly relies on software systems for our daily activity (e.g., in communication, finance, healthcare, and transport), the use of adequate engineering practices in the form of methods, processes, and tools throughout the lifecycle of these systems becomes essential to ensure their suitability. In this context, CibSE is the leading Software Engineering (SE) research forum in Ibero-America. It promotes high-quality scientific research and, thus, supports the researchers in this community in publishing and discussing their work. In addition, the conference fosters collaboration and cross-fertilization among academics, students, and practitioners from the industry.

Eighty-four papers were submitted for this edition of the conference. Each submission was reviewed by at least three members of the Program Committee (formed by qualified experts), and followed by a leading review. After carefully peer-reviewing, 30 papers were finally selected (35% acceptance rate). Five distinguished papers were invited to submit an extended version to the Science of Computer Programming journal, and the best paper received an award certificate. In addition to the 18 original papers, 2 papers were accepted in the Journal First category, offering an opportunity for the authors to discuss their work with the community and enrich the CibSE technical program, and 2 posters were presented. Finally, 6 papers were accepted in the new submission category entitled "Articles on applied R&D projects or contracts with companies", which present ongoing research projects and experiences in research transference.

CibSE 2024 hosted the Doctoral Symposium, which aims at bringing together doctoral students working on foundations, techniques, tools, and applications of Software Engineering and allowing them to present and discuss their research in a constructive and international atmosphere where a board of experts discuss with the students to suggest new perspectives and improvements to the PhD theses. Two ongoing doctorate research projects were presented. Moreover, prof. Tayana Conte. (Federal University of Amazonas (UFAM), Brazil) presented the keynote "Getting in the Game - A Conversation with Those Truly Eager to Be Researchers".

CibSE 2024 also hosted the 7th edition of the Ibero-American School on Software Engineering (EIBAIS). EIBAIS aims to promote a forum for discussions regarding Software Engineering, its related technologies, and theoretical foundations, allowing the participation of practitioners, undergraduate and graduate students, and researchers. This year, EIBAIS presented three tutorials, discussing general and specific topics of Software Engineering together with cross-fertilization with other technology disciplines:

- Process Mining: fundamentals, applications, and tools. Contributions to process modeling in requirements, quality assessment, and evidence-based improvement (Andrea Delgado).
- Machine Learning-Enabled Systems Requirements Elicitation and Specification (Marcos Kalinowski).
- Design thinking at stage zero: user requirements and needs (Rodrigo Gonzatto).

CibSE 2024 included the Industry Talks, which aims at providing the industry and practitioners with means to discuss and work together in exploring how Software Engineer processes, methods, techniques, and tools can provide the industry with better solutions. Seven experts from the industry shared their experience with the CibSE audience.

The conference had three important and trending keynotes:

- Advancing Leadership and Strategic Advantage in Software Engineering, presented as a “panel keynote”. Anita Carleton (Carnegie Mellon University Software Engineering Institute) led, as panel chair, the discussion of Doug Schmidt (U.S. Department of Defense), John Robert (Software Engineering Institute), and Ipek Ozkaya (Software Engineering Institute) as speakers. The keynote panel discussed the evolution of software engineering and the use of AI to enhance software development, testing, and maintenance. Based on the study "Architecting the Future of Software Engineering" and collaboration with the NITRD program, they highlighted essential technologies and research areas. They focused on three main areas: AI-augmented software development, ensuring software assurance in continuously evolving systems, and constructing predictable software systems from modular components. The session explored these critical topics and their impact on the future of software engineering.
- Paving the Way for Tomorrow’s Software Revolution. Jordi Cabot (Luxembourg Institute of Science and Technology - LIST). The talk addressed the growing demand for intelligent software, such as natural language interfaces, recommender systems, and client classification tools. Given the shortage of skilled developers, the speaker argued that hyperautomation is the

solution. Hyperautomation, which combines low-code and generative AI techniques, enables faster and more cost-effective application development. The talk demonstrated how these techniques work, their benefits and risks, and discussed the development of an open-source AI-enhanced low-code platform in Luxembourg.

- AI-Driven Business Transformation: Engineering Effective Machine Learning and LLM-Enabled Systems. Marcos Kalinowski (Pontifical Catholic University of Rio de Janeiro - PUC-Rio). The keynote combined practical experience and academic innovation to outline AI Engineering. It featured real-world systems from ExACTa PUC-Rio, highlighting effective business solutions and international patents. The academic insights came from recent AI research and publications. The presentation covered agile approaches to developing AI systems, focusing on the full development lifecycle and aligning business expectations. It addressed engineering software with ML and LLM components, offering practical advice and setting the stage for future research.

Finally, we would like to thank all people who contributed to making this event possible. The quality of the technical program is a result of the dedication of the members of the Program Committee and additional reviewers. We would also like to thank all members of the organizing committee, authors, keynotes, panelists, instructors, session chairs, and all the participants for their collaboration in making CibSE 2024 a success. We express our gratitude to the CibSE Steering Committee for their great support, particularly to Marcela Genero, Guilherme Horta Travassos, and Beatriz Marín. We would also like to express our gratitude to Giovanni Andrés Giachetti Herrera and Breno Bernard Nicolau de França (CibSE 2023 Program Chairs) for their expertise and advice. We are thankful for the opportunity to serve as chairs for this conference.

Ignacio García Rodríguez de Guzmán and Edson Oliveira Jr
CibSE 2024 PC Chairs

Main Conference

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Óscar Pastor (Universidad Politécnica de Valencia, España)

Pedro Valderas (Universitat Politècnica de València, España)