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“Sistemas de Informação para um Mundo mais Humano!”

Proceedings of 18th Brazilian Symposium on Information Systems

“Information Systems for a More Humane World!”

Sociedade Brasileira de Computação – SBC

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Special Commission of Information Systems (CESI) of Brazilian Computer Society (SBC)

Dear attendees of the XVIII Brazilian Symposium on Information Systems (SBSI),

On behalf of the Special Commission of Information Systems (CESI) of the Brazilian Computer Society (SBC), we would like to welcome another edition of our annual symposium. CESI brings together IS researchers and professionals and manages this area in Brazil in the context of SBC. Its work consists of articulating policies for the dissemination, strengthening, consolidation and improvement of the quality of education, research, innovation and performance in IS in Brazil, promoting and proposing important activities for the development and consolidation of this area in our country. SBSI is one of CESI's main actions. For this reason, we are happy that authors submit their work, that evaluators strive to give the best possible feedback on their reviews and that coordinators are able to hold memorable moments so that the community can be strengthened, attract more participants, and consolidate in the country. As such, CESI calls on the IS community to be increasingly active and SBSI participants to get involved and bring new researchers to the event, making the community stronger and solidifying their research.

SBSI is the most important forum on IS in Brazil and annually brings together researchers from all over the country. This year, SBSI takes place hybridly from Curitiba, State of Paraná, under the general coordination of professors Alexandre Graeml and Rita Berardi, from the Federal University of Technology - Paraná (UTFPR). After several months of intense work and unparalleled dedication by the professors and their local organization team, we made available to the IS community a rich, diversified, comprehensive, and solid program, communicating the latest research results in the IS area in Brazil. The event has grown considerably in recent years. This achievement is a reflection of the consolidation of the area, which has only been possible due to the growing support of the entire IS community. SBSI 2022 is composed of several parallel events, which include technical sessions, lectures, short courses, and master classes, and the traditional IS Education Forum (FESI), Workshop on Scientific Initiation in IS (WICSI), Workshop on Theses and Dissertations in IS (WTDSI), IS Innovation Meeting (EISI), IS Research Quality Workshop (WQPSI), IS Theses and Dissertations Contest (CTDSI) and IS Undergraduate Projects Contest (CTCCSI), in addition to the Innovative IS Development Contest (CoDeSil) and TechDay. All works accepted to SBSI satellite events are published in the SBSI Extended Proceedings and also made available to the community.

The Program Committee, coordinated by Professor Valdemar V. Graciano Neto (UFG) and Awdren de Lima Fontão (UFMS), worked hard and expertly so that the most mature and highest quality works could be brought to the Brazilian IS community. Such rigorous selection work yielded full confidence in the quality of the papers presented at this symposium in 2022. In addition, the partnership with the ACM Digital Library continues to emphasize the association with the ACM Interest Groups (SIGAPP). This is a differential of SBSI in relation to several other SBC events, given the relevance of this association in the global context. Such partnerships enormously intensify the impact of the work carried out by the program committee and by the authors of the papers, enhancing the scope and reach of the production of SBSI, which is also indexed and accessible worldwide by the DBLP database. In time, it is important to emphasize that the proceedings of SBSI and its member events are also being indexed and made available at the SBC Open Lib - SOL.

Finally, we thank all the participants, collaborators, coordinators, sponsors, supporters, and organizers who made the event possible once again, especially in yet another difficult and challenging period for humanity.

We wish you all a great SBSI 2022!

Kind regards,

Rodrigo Santos (UNIRIO) - CESI/SBC Coordinator - 2021-2022
Johnny Cardoso Marques (ITA) - CESI/SBC Vice-Coordinator - 2021-2022



Rodrigo Pereira dos Santos is an Assistant Professor at the Department of Applied Informatics at the Federal University of the State of Rio de Janeiro (UNIRIO, Brazil). Ph.D. in Computer Science and Systems Engineering from the Federal University of Rio de Janeiro (COPPE/UFRJ, Brazil). He was Academic Visitor at University College London (2014-2015) and a Postdoctoral Researcher at COPPE/UFRJ (2017). Head of the Complex Systems Engineering Laboratory (Lab ESC), leading a team of 20 students with more than 30 partners all over the world. His research interests are Complex Systems Engineering (especially software ecosystems and systems-of-systems) and Software Engineering Education. In the Brazilian Computer Society (SBC), he is a Coordinator of the Special Commission of Information Systems (CE-SI), a member of the Special Commission of Software Engineering (CE-ES), a member of the Special Commission of Games and Entertainment Computing (CE-Jogos), and member of the Interest Group of Computer Science Education (GIEC). He was Editor-in-Chief of iSys: Brazilian Journal of Information Systems (2017-2021). He is a member of the Education Evaluating Commission at the Brazilian Ministry of Education. He worked on several projects related to software process improvement and reuse management in large companies at Coppetec Foundation (2008-2017).



Johnny Cardoso Marques has a degree in Electrical Engineering with an emphasis on Systems and Computing from the State University of Rio de Janeiro/UERJ (2002). Master by the postgraduate program in Aeronautical and Mechanical Engineering in Aerospace Systems and Mechatronics by the Aeronautics Institute of Technology/ITA (2004). Doctor in Electronic Engineering and Computer Science at ITA (2016). He is an Adjunct Professor in the Computer Science Division and chief of the Division of Research, Development, and Innovation at ITA. He is the author of several standards and publications in software engineering at the Associação Brasileira de Normas Técnicas (ABNT), Radio Technical Commission for Aeronautics (RTCA), and the Institute of Electrical and Electronics Engineers (IEEE). He is interested in Information Systems, Software Engineering, Software Quality, Software Processes, Critical Systems, Health Informatics, and Requirements Engineering. Finally, he also works in applying software engineering methodologies in the context of safety-critical systems for aerospace, medical and automotive devices. He is ITA's Institutional Representative at the Brazilian Computer Society (SBC) and an associate of the Brazilian Society of Health Informatics (SBIS).

Program Committee

Information Systems (IS) crosscut several areas of interest, supporting strategic decisions and enabling humans to deal with information in different moments and scenarios. In addition to enhancing and leveraging businesses, ISs are able to anticipate and provide subsidies to deal with unexpected situations and promote more efficient and transformative management in the most diverse areas, such as health, education, logistics, agribusiness, finance, public management, among others.

The IS research area understands computing as a means for solving problems in the real world, society, and organizations. In that sense, the Brazilian Symposium on Information Systems (SBSI) is the annual event of the IS community of the Brazilian Computer Society (SBC) for the exchange of academic, scientific and professional knowledge and experiences, presentation of scientific papers, discussion of contemporary issues in the IS area and alignment of the community's strategies and actions, bringing students, researchers, professionals, and entrepreneurs closer to the community interested in IS.

In the 18th edition, SBSI 2022 takes place in a hybrid format from Curitiba/Paraná, under the coordination of the Federal Technological University of Paraná (UTFPR) and will have as its theme “Information Systems for a More Humane World!”. The chosen theme reflects the importance of not only advancing and developing technologies, but also preparing the IS to be aligned with human needs, respecting differences, reducing stereotypes, and promoting equality.

This year, we received 129 submissions of scientific papers for discussion at the event. Submitted papers received 3-5 reviews from 132 program committee members and 39 external reviewers. In the end, 49 papers were accepted for presentation and debate during the SBSI, with an acceptance rate of 37.98%. Authors come from 45 different institutions in 17 Brazilian states and two other countries (the USA and The Netherlands).

Along with the communications of scientific papers, the event has a robust program and a very high academic-scientific level, in the form of lectures and masterclasses. We will receive two international speakers: Prof. Dr. Claudia Loebbecke (University of Cologne), with the lecture entitled “Information Systems for a More Humane World: When Data and Artificial Intelligence Hit the Human Brain” and Prof. Dr. Robert Davison (City University of Hong Kong) with the lecture entitled “The Cultural Values of Scholarly Journals and Their Implications for Various Stakeholders”. In the national scenario, we have Mrs. Nina da Hora, with the lecture entitled: “Ethics in Algorithmic Systems - What is our responsibility?”. Aiming to consolidate theoretical and practical bases for research and technological development in IS in Brazil, we will have two masterclasses: "GoodWeb: Social Sensing for the Study of Urban Societies" taught by Prof. Dr. Thiago Henrique Silva (UTFPR) and “Shall we broaden our view of Information Systems?”, given by Prof. Dr. Renata Araújo (Mackenzie) and Sean Siqueira (UNIRIO).

We would like to thank the Brazilian Computer Society, the general coordinators of SBSI 2022, and other coordinating colleagues of the events that make up the SBSI. We thank and congratulate the colleagues who made up the program committee and review body for their excellent contributions to the authors in their articles and discussions. To the researchers-authors of the papers submitted to the event, we would like to thank you for your interest in the event and in the collective development of the Information Systems area in Brazil. Finally, our sincere thanks to the speakers, masterclass teachers, and participating community for the success of this seventeenth edition of SBSI. Let's all have an excellent event!

Kind Regards,
Valdemar Vicente Graciano Neto (UFG) and Awdren Fontão (UFMS)
Technical Program Committee Chairs



Valdemar Vicente Graciano Neto is a Professor at the Informatics Institute at Universidade Federal de Goiás. Received his Ph.D. degree from the University of São Paulo, Brazil, and the Docteur degree from the Université Bretagne-Sud, France, in 2018. He has organized scientific events, such as the Brazilian Symposium on Information Systems (2015), Workshop on Modeling and Simulation of Software-Intensive Systems (MSSiS, 2019-2021), and Workshop on Blockchain-Based Software Architectures (BlockArch at ICSA). He serves as a reviewer for important vehicles, such as IEEE SoSE, IST, and IEEE Computer. He is a member of the Brazilian Computer Society and has also served the Special Committee on Information Systems (CESI) in 2015, 2016, 2018 (as the coordinator), and 2021-2022.



Awdren de Lima Fontão is a Professor at Faculty of Computing (FACOM) at Federal University of Mato Grosso do Sul (UFMS). He received his Ph.D. degree from the Institute of Computing (ICOMP) from the Federal University of Amazonas (UFAM). Experienced in the field of Computer Science, with an emphasis on Information Systems, Software Engineering, especially, in Software Ecosystems, Developer Relations and Software Engineering applied to Artificial Intelligence. He is a member of the Brazilian Computer Society and Special Committee on Information Systems (CESI). He has been part of the organization team of scientific events such as SBQS, SBSI, ICGSE/ICSSP, WASHES@CSBC. He also serves as a reviewer for

academic venues, such as JSS, iSYS, IJBIS, ASE, JSERD.

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