

# **Conference Program**

## October 24th, 25th and 26 th -2023 UNICAMP University, Campinas – SP - Brazil





## Welcome to the BTSym'2023 as a Virtual Event

The Brazilian Technology Symposium (BTSym), **ISSN 2447-8326**, is an event created by the Laboratory of Visual Communications of the Faculty of Electrical and Computer Engineering at the State University of Campinas. This is an excellent forum for presentations and discussions of the latest results of projects and development research in several areas of knowledge, in scientific and technological scope.

This event seeks to bring together researchers, students, and professionals from the industrial and academic sectors, seeking to create and/or strengthen the linkages between issues of joint interest. Participants are invited to submit research papers, case studies, articles of opinion, or posters, showing studies, methodologies, and results achieved in scientific level research projects, completion of course work for graduation, dissertations, and theses.

The BTSym'23 organizing committee invites researchers to attend and submit papers addressing the current research topics of interest. In 2023, the event will be held on **October 24th, 25th, and 26th at the State University of Campinas, SP**. Proceedings of the event will be published by **Springer** publisher through the book **Proceedings of the 8th Brazilian Technology Symposium - Emerging Trends and Challenges in Technology,** and will be submitted for indexing by **Scopus, WoS,** and **EI Compendex database.** 

In 2023, we received 90 research works, divided into: 60 articles submitted for option A and 30 articles submitted for option B.



Dr. Yuzo Iano General Chairman

## **Organizing Committee**



## **Coordinating Committee**

Maria Thereza de Moraes Gomes Rosa Panel 1	Ana Cláudia Seixas UNIFAL Panel 1	Osamu Saotome ITA Panel 2
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Euclides Lourenço Chuma LCV/DECOM/FEEC/UNICAMP Panel 2	Cláudia Cotrim Pezzuto PUC/CAMPINAS Panel 3	João Carlos Gabriel Panel 3
Marcos Almeida do Amaral Mackenzie/Campinas Panel 4	Edgard Luciano Oliveira da Silva UEA Panel 5	Marcius Fabius Henriques de Carvalho PUC/CAMPINAS Panel 5
Clarissa Fernanda C. Lima Loureiro CTI Renato Archer Panel 6	Gabriela Fleury Seixas UEL Panel 7	Victor A. M. Montalli SLMANDIC Panel 7
BTSym'2023		

## **General information**

### **Conference location:**

Virtual via Webex

## **Contact Info:**

Phone LCV committee: - Gabriel Gomes: +55 19 982886496

## Contact BTSym Support:

If you have any need for additional information, questions, concerns, and/or system issues, please feel free to contact the Editorial Office via email.

Email Address:

contact.btsym@gmail.com

## Virtual Oral and Poster Presentations:

The authors are obliged to be present during the panels designated for the presentation, using the time given by

the person in charge of the panel discussion or poster session. Such presentations utilize technological solutions to allow you present live.

## Useful Telephone Numbers:

Ambulance: 192

Police: 190

Fire Brigade: 193

These numbers may be dialed from public or mobile phones, even without a card.

## October 24th, 2023 (14:00 - 17:00)

**Panel discussion 1:** Technology and industrial processes. **Topic covered:** Industrial technological processes, Technology applied to production processes, Innovation models, Digital factory, Quality 4.0, Logistics 4.0, Innovation 4.0, Clean technologies, Industrial automation, Engineering Process Simulations.

**Moderators:** Maria Thereza de Moraes Gomes Rosa, PhD Ana Cláudia Seixas, PhD



14:00 - 14:10	Paper: Jellybeans supplemented with honey polyphenols (Apis mellifera L.) from the Apurimac life zones. Authors: Pedro Pablo Arteaga Llacza, Angélica Miranda-Jara, Wilber Quispe-Prado.
14:10 - 14:20	Paper: Application of different filter media in bag filters: a Review. Authors: Ana Cristina Coelho Vieira.
14:20 - 14:30	Paper: A Predictive Maintenance Model for Industry 4.0. Authors: Wandercleiton Cardoso, Renzo Di Felice, Danyelle Santos Ribeiro, Saulo Alexandre Inacio, Elielton Cometti, Gabriel Gomes de Oliveira.
14:30 - 14:40	Paper: Effects of Sigma Phase Transformation on Corrosion Resistance in Duplex Stainless Steels. Authors: Wandercleiton Cardoso, Danyelle Santos Ribeiro, Lucas Reis dos Santos, Elielton Almeida Cometti, Gabriel Gomes de Oliveira, André Itman Filho.
14:40 - 14:50	Paper: Inconel 625 Alloy Tubes: Manufacture and Applications. Authors: Wandercleiton Cardoso, Danyelle Santos Ribeiro, Renato Borges de Faria, Gabriel Gomes de Oliveira, Kátia Pausen Guimarães, André Itman Filho.
14:50 - 15:00	Paper: Thermodynamic models for predicting R-134a and R1234yf superheated vapor specific entropies and enthalpies for evaluating vehicle air conditioning. Authors:Luiz Felipe do Nascimento Saviani, Maria Thereza de Moraes Gomes Rosa, Míriam Tvrzská de Gouvêa.

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#### Moderators:

Maria Thereza de Moraes Gomes Rosa, PhD Ana Cláudia Seixas, PhD



15:00 - 15:10	Paper: Contention system of a discontinuous pile screen in a deep excavation in gravelly soils. Authors: Andrés Jaime Velasquez Cutire, Marcela Eugenia Cabrera Torres, Álvaro Pérez Zúñiga.
15:10 - 15:20	Paper: Design of an artificial vision algorithm for the detection and classification of the ripeness degree of Kent mangoes in the packaging area. Authors: Ryan Abraham León León, Raúl Yordi Reyes Vidal, Angie Yanixa Segura Garcia.
15:20 - 15:30	Paper: Alternative controller synthesize methods with H∞ performance for an uncertain system based on metaheuristic optimization. Authors: Roberto Fuentes Albornoz, Yamisleydi Salgueiro, Márcio Jr. Lacerda, Jonathan Palma.
15:30 - 15:40	Paper: A feedback linearization controller applying multi-layer perceptron and wavelet neural networks into a Hydraulic Actuator. Authors: Fabio Borges, Thomaz Silva Jr, Letieri Ávila, Vitor Fiori.
15:40 - 15:50	Paper: A Comprehensive Survey and Analysis of CNN-LSTM-Based Approaches for Human Activity Recognition. Author: Juan Carlos Minango.
15:50 - 16:00	Paper: IoT Platform to monitor Industrial Machines and perform PdM at the edge: A case study. Author: Lahis Almeida.

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Maria Thereza de Moraes Gomes Rosa, PhD Ana Cláudia Seixas, PhD



16:00 - 16:10	Paper: Evaluation of Lithium Nitrate as an alternative to reduce the expansive effect of the Alkali-Silica Reaction in concrete made with reactive aggregates in Arequipa – Perú. Authors: Cristhian Peña, Nick Barraza Leon, Pablo Peña Torres.
16:10 - 16:20	Paper: Desenvolvimento de uma Plataforma Modular para Testes Automatizados de Dispositivos Eletrônicos de Baixa Complexidade. Authors: Ruan Teixeira, Keven Costa, Yago Oliveira, André Printes, Luis Riquelme, Jessamine Azevedo.

## October 24th, 2023 (19:00 - 21:00)

**Panel discussion 2:** Microelectronics, Sensors, Robotics, Artificial Intelligence, and Real-Time Systems.

**Topic covered:** Microelectronics, MEMS, Reconfigurable Devices and Systems, Sensors, Robotics, Satellites, Aerospace and Defence, Artificial Intelligence, Radar System and Algorithms, Resilient and Robust Systems, Real-Time Systems.

#### Moderators:

Osamu Saotome, PhD Euclides Lourenço Chuma, PhD



19:00 - 19:10	Paper: RBM-SMOTE based Deep Learning Model for Imbalanced Medical Data Learning. Authors: Suja A. Alex, Gabriel Gomes de Oliveira.
19:10 - 19:20	Paper: Overview of Big Data Analytics in Power Quality Analysis and Assessment. Authors: Ricardo Siqueira de Carvalho.
19:20 - 19:30	Paper: Forecasting of Blast Furnace Slag Production Using Artificial Neural Networks. Authors: Wandercleiton Cardoso, Renzo Di Felice, Danyelle Santos Ribeiro, Elielton Almeida Cometti, Gabriel Gomes de Oliveira.
19:30 – 19:40	Paper: Computer Vision Applied to Vehicle Flow Monitoring for a Smart Campus. Authors: Maria Isabela Monteiro Servino, Luis Fernando Gonzalez, Rodrigo Luiz Ximenes, Talía Ximenes.
19:40 - 19:50	Paper: Real-Time Analysis of Hatching of Folsomia candida Eggs and Automated Counting of Emerging Individuals through Computer Vision. Authors: Miriã Sousa, Talía Ximenes, Rodrigo Ximenes, Marta Pires.
19:50 - 20:00	Paper: Smart Pool Heater Within The IoT (Internet of Things) Context. Authors: Felipe Ramos.

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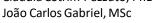
20:00 - 20:10	Paper: Detection and Counting of Fruit Flies (Diptera: Tephritidae) in a Smart Trap. Authors: Ester Marques de Sousa, Rodrigo Luiz Ximenes, Miguel Francisco de Souza-Filho, Talía Simões dos Santos Ximenes.
20:10 - 20:20	Paper: A Base FPGA Platform for Safer Designs exposed to harsh radioactive environments. Authors: Ricardo Zanone, Osamu Saotome.
20:20 - 20:30	Paper: Reliability Guaranteed ARINC 429 Protocol for Critical Data Transmission. Authors: André Andrade de Almeida, Osamu Saotome, Raphael das Neves Calvo.
20:30 - 20:40	Paper: Human Activity Recognition Implementing CNN-LST. Authors: Juan Carlos Minango.
20:40 - 20:50	Paper: A preliminary study on class G amplifiers for piezoelectric loads. Authors: Vitor Nunes.
20:50 - 21:00	Paper: Fuzzy Temperature Control of Water Using a Motorized Single- Handle Valve. Authors: Paul Freire, Byron Casignia, Gladys Urquizo, Andrés Santiago Cisneros, Marcelo Tierra.

## October 25th, 2023 (10:00 - 12:00)

Panel discussion 3: Technology applied to buildings.

**Topic covered:** Construction 4.0, Automation and Robotics in buildings, Environmental comfort, Energy efficiency in buildings, Constructions, Technologies in Design, BIM, Construction Information Model, Provisional and adapted constructions, Sensors applied to civil construction, Sustainable buildings, Smart buildings.

Moderators: Cláudia Cotrim Pezzuto, PhD





10:00 - 10:10	Paper: Last Planner System as a methodology to increase productivity in medium-sized real estate projects. Authors: Juana Lisbeth Chinchay Huaman, Franco Guiseppe Cristobal Bonifacio, Brian Irving Arriola Oliveros.
10:10 - 10:20	Paper: Comparison of compressive strength of concrete made with drinking water and wastewater treated by reverse osmosis in areas affected by water scarcity. Authors: Eliot Quiñe, Jorge Luis Sifuentes Cervera.
10:20 - 10:30	Paper: Load Analysis Using Reinforcement Learning for Home Energy Management Systems. Authors: Vítor Pochmann, Luís Geraldo Pedroso Meloni.
10:30 - 10:40	Paper: Geração de Painéis Fotovoltaicos em Fachadas com Diferentes Orientações. Authors: João Augusto Ferraz Balducci, Alexandre Saugo Mazzari, Lia Toledo Moreira Mota, Marcius Fabius Henriques de Carvalho, Cláudia Cotrim Pezzuto.
10:40 - 10:50	Paper: Comparação da Geração de Painéis Fotovoltaicas em Coberturas e em Fachadas. Authors: Alexandre Alexandre Saugo Mazzari, João João Augusto Ferraz Balducci, Lia Toledo Moreira Mota, Marcius Fabius Henriques de Carvalho, Cláudia Cotrim Pezzuto.

## October 25th, 2023 (14:00 - 16:00)

#### Panel discussion 4: Product Development and Innovation.

**Topic covered:** Engineering design, Design methods, Design thinking, Sustainable product development, Circular economy, Cradle to Cradle (C2C), Innovation strategies applied to product development, Business model innovation, Digital innovation and transformation, Open innovation.

#### Moderators:

Marcos Almeida do Amaral, MSc.



14:00 - 14:10	Paper: Study of methods for removal of microplastics composed of Bisphenol A in Wastewater Treatment Plants. Authors: Ana Cristina Coelho Vieira, Caroline Piffer Diniz Santos.
14:10 - 14:20	Paper: Human Resource Management and Health and Safety Indicators. Authors: Danyelle Santos Ribeiro, Wandercleiton Cardoso, Kátia Pausen Guimarães, Lucas Reis dos Santos, Elielton Almeida Cometti, Renato Borges de Faria, David Trotti.
14:20 - 14:30	Paper: Fabricação de Filamento 3D Ecologicamente Correto. Authors: Vinícius Coelho Gamas, Lorenzo Campos Coiado.
14:30 - 14:40	Paper: Evaluation of the use of treated wastewater from the WWTP in the mixing and curing of concrete f'c=210 kg/cm2 to reduce potable water consumption in Lima, Peru. Authors: Melanie Broncano Sanchez, Gysila Lolo Antonio.
14:40 - 14:50	Paper: Development of a Personal Digital Assistant for a reading fluency assessment tool. Authors: Marcelo Carlos, Vitor Cruz, Osamu Saotome, Denis Loubach, Adilson Cunha, Roberto D'Amore.

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#### Moderators:

Marcos Almeida do Amaral, MSc.



14:50 - 15:00	Paper: Metodologia para Análise de Integridade de Sinais em Barramentos USB 3.0. Authors: Emily Mesquita
15:00 - 15:10	Paper: Mineral metal-oxalates formed by hydrogen bonds: the new potential two-dimensional natural crystalline structures. Authors: Augusto Nobre.
15:10 - 15:20	Paper: A Multiplataform Business Intelligence Solution for Software Test Analysis. Authors: Daniel Sena.
15:20 - 15:30	Paper: Study of Impedance Control of Differential Transmission Lines for High Speed Circuits on Printed Circuit Boards. Authors: André Luiz Printes, Lennon Brandão Freitas Nascimento, Fábio Arozo Albuqurque, André Wagner Lima Osório Filho, Italo Tony da Costa Alves, Yago Costa de Oliveira, Fábio de Sousa Cardoso, Daniel Guzman Del Rio.

## October 25th, 2023 (19:00 - 21:00)

**Panel discussion 5:** Telecommunications, product development and innovation in mobile systems.

**Topic covered:** New products and services, Mobile systems for 4G and 5G cell phones, Visual computing, Image and video processing, Machine learning,

Human-computer interaction using image processing, Image processing for realtime control, Medical image processing, new generation of digital TV, Digital TV interactivity, Broadband and transmission systems.

#### Moderators:

Edgard Luciano Oliveira da Silva, PhD Marcius Fabius Henriques de Carvalho, PhD



19:00 - 19:10	Paper: The Use of DWDM Technology in ISPs (Internet Service Providers) Networks. Authors: Felipe Ramos.
19:10 - 19:20	Paper: Modeling of Planar Dipole Antenna with Linear Polarization. Authors: Emerson Vieira, Polyane Alves Santos, Lucas Ribeiro, Kenedy Marconi Santos, Tagleorge Silveira.
19:20 - 19:30	Paper: Comparative analysis on virtual voice assistants in smart homes manufactured between 2018 and 2020 Authors: Oscar Mauricio Flores López, Rodrigo Cadena Martínez.
19:30 - 19:40	Paper: DISPOSITIVO DE AUXÍLIO PARA DEFICIENTES AUDITIVOS. Authors: Rodrigo Costa, Lorenzo Campos Coiado.
19:40 – 19:50	Paper: The Power of Attention: Cognitive load, multimedia learning, and Al. Authors: Herbert Macêdo Jr., Edgard Silva, Italo Thiago Santos.
19:50 - 20:00	Paper: Graphene-Based 2D Photonic Crystal Demultiplexer Design. Authors: Alan dos Reis Silva, Marcos Benedito Caldas Costa.

## October 26th, 2023 (10:00 – 12:00)

#### Panel discussion 6: Technologies applied to urban infrastructure.

Topic covered: Smart Cities, Urban environmental comfort, Technologies applied to urban planning, Technology and management of urban infrastructure, Innovation and technology in the urban environment, Intelligent technology and transport, Urban monitoring.

#### Moderators:

Clarissa Fernanda Correia Lima Loureiro, MSc.



10:00 - 10:10	Paper: A Internacionalização On-line com alunos da Engenharia de Controle e Automação. Authors: Francisco de Salles Gomes, Sérgio Roberto Pereira, Carlos Eduardo Pizzolatto, Oscar Agustín Loyola Valenzuela.
10:10 - 10:20	Paper: Comparative Study of Battery Electric and Internal Combustion Engine Trucks: Analysis of CO2 Emissions. Authors: Everton Lima, Crhistian Baldo, Calebe Souza.
10:20 - 10:30	Paper: Monitoring and tracking system based on LoRa LPWAN technology for small vessels and/or small boats. Authors: Danilo Frazão, Diego Gomes, Edgard Silva.
10:30 - 10:40	Paper: PROPOSAL OF A MODEL FOR THE MANAGEMENT OF CHANGES IN THE DESIGN PHASE OF PUBLIC WORKS OF EDUCATIONAL INFRASTRUCTURES BASED ON THE BIM AND ICE METHODOLOGY. Authors: Andrea Natalia Valderrama Sardi, Karla Rosario Fernández Romero, Brian Irving Arriola Oliveros.
10:40 - 10:50	Paper: Accessibility at Bus Terminals in the Metropolitan Region of Campinas – São Paulo, Brazil. Authors: Luiz Vicente Figueira de Mello Filho, Vânia Vaccari, Pedro Valota, Daiane Bilibio Parno, Bianca Rosa, Junia Vasconcelos, Wesley Justino, Vaner Santos, Luciano Brandão Machado.
10:50 - 11:00	Paper: Detection and control of traffic jams in urban environment. Authors: Carlos Heitor Vallim, Ademar Takeo Akabane.
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## October 26th, 2023 (10:00 - 12:00)

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#### Moderators:

Clarissa Fernanda Correia Lima Loureiro, MSc.



11:00 - 11:10	Paper: Forescasting model applied to the base unit cost of construction in the state of Mato Grosso, Brazil. Authors: Adriano Ricardi Ramos de Arruda, João Gabriel Ribeiro, Giovane Maia do Vale, Gustavo Henrique Nunes, Vlademir de Jesus Silva Oliveira, and Guilherme Braga do Vale.
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## October 26th, 2023 (14:00 - 16:00)

Panel discussion 7: Applied Biomedicines.

**Topic covered:** Medicine, Covid-19, Dentistry, Biology, Biomedicine, Nursing, Medicines, Vaccines.

#### Moderators:

Victor A. M. Montalli, PhD Gabriela Fleury Seixas, PhD



14:00 - 14:10	Paper: Therapeutic Mental Health Workshop as Part of Family Health Strategy: Benefits in the Anti-Asylum Process. Authors: Neimar Hubner Leite Loriato, Gledson Loriato, Juarez Leite Junior, Wandercleiton Cardoso.	
14:10 - 14:20	Paper: The Role of the Nurse in Diagnostic Imaging Tests. Authors: Gledson Loriato, Neimar Hubner Leite Loriato, Juarez Leite Junior, Wandercleiton Cardoso.	
14:20 - 14:30	Paper: Cost-effective Platform for the Acquisition of Vital Signs. Authors: Davi Buratto, Frank Behrens.	
14:30 - 14:40	Paper: Electromyography Application Control - Enhancing Multidisciplinary Knowledge Appropriation. Authors: AMILTON LAMAS.	
14:40 - 14:50	Paper: Designing an electronic circuit to emulate the control of pharmacological processes Authors: Victor Hugo Costa, Jonathan Palma, Cecilia Morais	
14:50 - 15:00	Paper: FLUID DYNAMIC APPROACH TO AORTIC STENOSIS. Authors: Felipe Macedo, Raquel Lobosco, Edmundo Guimarães de Araújo Costa, Guilherme Barbosa Lopes Junior.	

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#### Moderators:

Victor A. M. Montalli, PhD Gabriela Fleury Seixas, PhD



15:00 - 15:10	Paper: Modeling and Simulation of a Radio Frequency Identification (RFID) Tag for Hospital Applications. Authors: Laiza Nascimento, Polyane Alves Santos, Lucas Ribeiro, Kenedy Marconi, Tagleorge Silveira.	
15:10 - 15:20	Paper: Electromagnetic Characterization of Flexible Materials for Biocompatible Sensor Applications. Authors: Andrey Pinheiro, Polyane Alves Santos, Lucas Ribeiro, Kenedy Santos, Tagleorge Silveira.	
15:20 - 15:30	15:30 Paper: Computational Modeling of a Prototype for Ankle Rehabilitation. Authors: Victor Huaman.	

## <u>Official Closing – Event Virtual</u>

October 26th, 2023 (19:00 – 21:00)			
	<b>Official Closing</b> <b>Moderator:</b> Kelem Christine Pereira Jordão, PhD		
19:00 - 21:00	Lecture – Rumo à Nanoeletrônica do Amanhã: Tendências, Inovações, Evoluções Tecnológicas, Desafiios e Oportunidades. Speaker: Salvador Pinillos Gimenez PhD.		

# Sponsor:





# Thank you very much!



