



Welcome to the 2024 Symposium on IoT (SloT)

Navigate the forefront of IoT research through stimulating discussions led by renowned scholars and researchers. Gain invaluable insights from top researchers and scholars as they unveil the latest advancements in IoT technology. The 2024 SloT is supported by FBlIoT, SBMicro, SBA, SBC, SBIAgro, SBrT, and EDS/IEEE.

The primary purpose of the International Symposium on the Internet of Things (SloT) is to bring together professionals and students working in the multidisciplinary area of the Internet of Things (IoT), presenting, and discussing their work, results, and applications. The event aims to attract people from different states of the country and other countries, as well as members of academia, research institutes, government, and business sectors. This year, SloT 2024 will be held in cooperation with the Brazilian Automation Congress (CBA 2024) from October 15th to 18th in Rio de Janeiro. The Symposium will focus on recent research results in the area, and the joint action between SloT and CBA will bring synergy between applications, markets, opportunities, programs, and government actions. This integration of the two events represents a unique opportunity. It combines the most significant technical and scientific societies in the IoT area, allowing for more significant interaction between the academic, research, and industry communities. This, in turn, is constructive for the training and professional vision of undergraduate and postgraduate students and professionals working in the market. There will be a call for regular papers with oral presentations and publication in the IEEE/XPlore system annals. There will also be a call for summary works to give space for undergraduate, master's, and doctoral students to present their ideas and ongoing results, which is also essential for their training.

Seize the opportunity to participate in this extraordinary event - submit your scientific contributions to 2024 SloT, secure your spot, and immerse yourself in the wonders of Rio de Janeiro as you explore the future of IoT!

Important Dates - SloT

Deadline extension:

- Paper submission: ~~June 17th, 2024~~ | July 9th, 2024
- Author notification: ~~July 22nd, 2024~~ | August 5th, 2024
- Camera-Ready deadline: ~~August 1st, 2024~~ | August 12th, 2024

PAPER SUBMISSION LINK:

<https://cmt3.research.microsoft.com/SIoT2024/>

Access Authors page for more information.

SIoT 2024 co-located with CBA 2024:

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Visit the CBA website to register and find out more.

Keynote Speakers:

Prof. Andre C. Ponce de Leon F. Carvalho –

Prof. Luiz Carlos Pereira da Silva – Unicamp

Prof. Claudio Miceli – UFRJ

Date: October 16th – From 14h30 am to 15h10 am –

Prof. Andre C. Ponce de Leon F. Carvalho –

Title: From Internet of Things to Artificial Intelligence of Things Making Cities Smart.

Abstract: Just as economic and social advances allow people to live longer and better, they also raise awareness that these advances need to happen faster and to be more sustainable and more inclusive. This generates a growing demand for a better quality of life, both in urban and rural regions. The Internet of Things plays a key role in both these advances and in the potential to increase well-being. One of the main paths for this increase is through the incorporation of new technologies, which allow, for example, the transformation of cities into smart cities. A smart city is a city that best meets the needs of its population, while being egalitarian, inclusive and sustainable. Among the technologies being adopted, those based on artificial intelligence can be highlighted. In this talk, I will present the Brazilian artificial intelligence research center IARA (Artificial Intelligence Recreating Environments), selected in a national call for Brazilian applied artificial intelligence research centers. I will discuss the main initiatives of the center, which works as a national network, represented in the 5 regions of the country.



Short Bio: André Carlos Ponce de Leon Ferreira de Carvalho has a PhD in Electronic Engineering from University of Kent, UK, both in Artificial Intelligence. He is Full Professor and the current Dean of the Institute of Mathematics and Computer Science, University of São Paulo (ICMC-USP), Brazil. He is also Director of the Brazilian Applied AI Research Centre IARA (Research Centre for Smart Environments), Coordinator of the Embrapil Unit in Data Science at ICMC-USP. He is a member of the Computer Science Advisory Committee of the Brazilian National Council for Scientific and Technological Development (CNPq), from 2024 to 2027, of the Steering Committee of the International Network for Government Science Advice (INGSA) Latin American and Caribbean Chapter, of the Partnerships Board at the UKRI Centre for Doctoral Training in Accountable, Responsible and Transparent AI (ART-AI), University of Bath, UK of the UK Expert Advisory Panel of State of Science Report for the risks associated with frontier AI and of the International Federation for Information Processing (IFIP) Technical Committee on Artificial Intelligence (AI), where he is the Chair of the Working Group Machine Learning and Data Mining. He is Assessor ad hoc for several national and international funding Agencies. He was Associate Professor in the University of Guelph, Canada and visiting researcher in the University of Porto, Portugal and in the Alan Turing Institute, UK, and visiting professor in the University of Kent, UK. He was Vice President of the Brazilian Computer Society (SBC) for two terms, 2019-2021 and 2021-2023. He coordinated several research and innovation projects with the private and public sectors.

Date: September 17th – From 09h30 am to 10h20 am –

Prof. Luiz Carlos Pereira da Silva

Title: CampusGrid UNICAMP: Smart Microgrid, Connectivity and IoT for a Sustainable Future

Abstract: The "CampusGrid" concept represents a modern and sustainable approach to energy management in university or corporate environments, currently being piloted on the Unicamp Campus through the ANEEL/CPFL R&D; project named MERGE - Microgrids for Efficient, Reliable and Greener Energy.

The presentation will explore each of the components that make up the CampusGrid:

- Renewable Energy: The use of renewable energy sources, such as solar or wind, reduces dependence on fossil fuels and minimizes environmental impact. - Energy Storage: Storage systems, like batteries, are essential to ensure a continuous energy supply, even when renewable sources are not generating electricity (e.g., at night or on windless days). -

Connectivity: Connectivity is crucial for integrating different energy sources and storage systems, allowing communication between them to optimize energy use. - Smart Monitoring and Control: Monitoring and control systems enable efficient management of energy consumption, generation, and storage, automatically adjusting distribution according to demand and resource availability. - Autonomous Operation Capability: The ability to operate autonomously, i.e., disconnected from the main power grid, ensures resilience and reliability, especially in situations of external grid failure.

These characteristics make microgrids an attractive solution for improving energy efficiency, reducing costs, and increasing sustainability in university campuses or corporate complexes. Additionally, they can serve as models of innovation for other communities and sectors.



ShortBio: He holds a degree in Electrical Engineering from the Federal University of Goiás (1994), a master's degree in Electrical Engineering from the State University of Campinas (1997), and a doctorate in Electrical Engineering from the State University of Campinas (2001). In 1999, he participated in a sandwich doctorate program at the University of Alberta, Canada, and in 2008, he served as a visiting professor at the Technical University of Denmark - DTU. He is a full professor at the State University of Campinas. He has experience in the field of Electrical Energy, energy efficiency, energy management and conservation, and energy transition. He coordinates the Sustainable Campus project at Unicamp. He received the Zeferino Vaz academic excellence award from UNICAMP in 2012. He received the Unicamp Inventors award from INOVA in 2019 and 2024. He was awarded the Technology Personality Award 2021 in the "Sustainable Energy" category by the Engineers' Union in the State of São Paulo - SEESP. He received the Socio-environmental Merit Diploma from the Municipal Government of Campinas in 2023. He received the Extension Award from PROEEC-UNICAMP in 2024. He is a member of the State Council of Energy Policy, CEPE-SP, with the Secretariat of Environment, Infrastructure, and Logistics, SEMIL-SP. He coordinates the São Paulo Center for Energy Transition Studies, CPTEN-FAPESP.

Date: September 17th – From 14h00 am to 14h40 am –

Prof. Claudio Miceli – UFRJ

Title: Building embedded machine learning applications for Industry 5.0

Abstract: The Internet of Things (IoT) is a new paradigm based on Information and Communication Technologies (ICT). Recently, the use of IoT has been gaining traction in areas such as logistics, manufacturing, retail and pharmaceuticals, transforming typical industrial spaces into Smart Spaces. This leads to a new paradigm called Industry 5.0. Since IoT data is often dynamic and heterogeneous, it becomes important to investigate techniques to understand and solve problems on building Embedded Machine Learning (EML) systems for Industry 5.0 devices. The use of EML is useful to reveal trends in collected data, discover new patterns in monitored variables, make predictions, thus improving the decision-making process, reducing decision response times and allowing a more intelligent and immediate view of the situation. This talk aims to show the challenges of building Embedded Machine Learning systems for the Industry 5.0 scenario, as well as case studies.



Short Bio: Claudio Miceli de Farias graduated in Computer Science (2008), and holds a master's degree (2010) and a PhD (2014) in Computer Science from the Federal University of Rio de Janeiro. He was chosen by MCTI to represent Brazil at the BRICS Young Scientists Forum in the area of Cyber-Physical Systems (2021). The professor was also awarded the Young Scientist of our state scholarship by FAPERJ. Currently, the aforementioned professor works in the Postgraduate Program in Systems and Computer Engineering (PESC-COPPE-UFRJ) and at the Tercio Pacitti Institute for Computer Research and Applications at UFRJ. In 2022, the aforementioned professor won the IEEE Hype-Intelligence Workgroup Middle Career Researcher Award for his contributions to the area. The professor's main topics of interest are smart cities, the Internet of Things, Data Fusion, and Security.

General Program:

Caption
2024 IoT Forum
2024 SIoT

2024 Symposium on IoT - October 16th to 17th, 2024

October 16 th			
Timetable	Module	Title	Coordinator
9:30 - 10:30	Round table - Women in the Automatic		SBA
Coffee Break			
11:00 - 11:30	SIoT – Opening Session	Claudio (FBIoT) – Piqueira (General Chair) – Representações das Sociedades: SBC, SBMicro, SbrT, SBA, SBIAgro	Session Chair: Piqueira/Spina
11:30 - 12:30	S1	Session Title: Performance Analysis	Chair: Jacobus
	S1 – ID-11	Performance Analysis of LoRaWAN on AU915 Frequency Band for Ambience Monitoring System in Brazil Authors: Dhiego Fernandes Carvalho, Paolo Ferrari, Eduardo P Godoy, Emiliano Sisinni.	
	S1 – ID-16	Implementing Throttling to Enhance Availability in Energy-Driven IoT Devices. Authors: Paulo H Q Lopes, Gibeon Aquino.	
	S1 – ID-25	Evaluating QoE in Cloud-based Virtual Reality Systems: a Pilot Study. Authors: Mariana R Godoy, Fabiana Machado, Igor B Vieira, Ricardo Mello, Anselmo Frizzera.	
Lunch			
14:30 - 15:10	Invited Talk: Andre C. Ponce de Leon F. Carvalho		Keynote Chair : Rebeca
15:10 - 16:30	S2	Session Title: Artificial Intelligence of Things	Chair: Cecilia
	S1 – ID-26	On the Design of an Inference Circuit for Tiny Machine Learning. Authors: Thiago H dos Santos, Cristina Meinhardt, Fabian L. Cabrera	
	S2 – ID-27	Smart Line-of-Sight Identification in LoRaWAN Networks. Authors: Lucas Lima de Oliveira, Alvaro de Medeiros, Edelberto Franco Silva, Leonardo de Oliveira, Vicente Sousa	
	S2 – ID-29	TinyML Implementation and Optimization for Fuel Type Classification on OBD-II Edge device. Authors: Miguel E. Amaral, Morsinaldo de A. Medeiros, Matheus G. Andrade, Thommas K Sales, Marianne Silva, Ivanovitch Silva	
	S1 – ID-35	Analytical expression for Recommendation ITU-R P.1546-6 propagation curves of land paths up to 20 km using symbolic regression. Authors: Guilherme Oliveira, Diego Haddad, Gilson A. Giraldi, Mauricio H Dias	
Coffee Break			
17:00 - 17:40	Invited Talk: Jorge Maia (CrazyTechLabs)	Revolutionizing Factory Operations with IoT And Generative AI	Keynote Chair : Claudio
Poster Section			

October 17 th			
Timetable	Module	Title	Coordinator
9:30 - 10:20	Invited Talk: Luis Carlos da Silva (Unicamp)	CampusGrid UNICAMP: Microrrede Inteligente, Conectividade e IoT para um Futuro Sustentável	Keynote Chair : Jacobus
Coffee Break			
10:50 - 12:10	S3	Session: Industrial Internet of Things	Chair: Spina
	S1 – ID-13	IoT-based Wireless Sensor Networks for Monitoring Drinking Water Treatment Plants. Authors: Luiz Octávio M. Lima, Lucas C Gonçalves, Gustavo C. Menezes, Lucas S. Oliveira	
	S2 – ID-14	IoT-Based Architecture for Real-Time Measurement and Monitoring of Industrial Parameters. Authors: Marcela O Coelho, Tiago Liduário, Victor Silva	
	S2 – ID-34	Energy Harvesting System based on a Hydro Electric Generator for Smart Irrigation Systems. Authors: Luiz F. P. Oliveira, Jéssica Mello, Luis Duarte, Flávio Morais	
	S1 – ID-40	A Low-Memory Implementation of a Hybrid Trusted Platform Module. Authors: Felipe José A. Rampazzo, Rodrigo D de Menezes, Caio Teixeira, Marco Aurelio A. Henrique	
Lunch			
14:00 - 14:40	Invited Talk: Claudio Miceli (UFRJ)	Building embedded machine learning applications for Industry 5.0	Keynote Chair : Cecilia
14:40 - 16:40	S4	Session: IoT Applications	Chair: Rebeca
	S4 – ID-8	Experimental Platform for Testing Open Process Automation Technologies Based on OPC UA and IEC 61499 Author: Egydio Tadeu G. Ramos, Anna Paula V. A. Aguiar, George A. Junior, Péricles R. Barros, Marcelo L. Lima	
	S4 – ID-19	Capture of air temperature and relative air humidity related to thermal discomfort of office occupants through a Cyber-Physical System. Authors: Antonio Pestana Neto, Ranulfo Acir Oliveira Resende, Francisco Dantas, Rodrigo Bonacin, Josue J G	
	S4 – ID-22	IoT promoting Student Engagement in Class. Authors: Alexandre B Costa, Joaci Neto, Rafaella Santos, Deodato Neto, Cecilia de A. C. Cesar	
	S4 – ID-23	Development of an IoT based sensing system for Structural Health Monitoring using low-cost accelerometers. Authors: Felipe Monobi, Andressa Martins, Pedro Lyra, Julia Roberto, Leonardo Sonoda, Brenda Leite	
	S4 – ID-37	Green Wave Coordination Through Wireless Traffic Light Controller System. Authors: Luiz F. P. Oliveira, Paulo Luz, Leandro Manera	
Coffee Break			
16:50 - 17:40	Plenary Speech - Closing Session	Best Paper / Best Poster SlOT-2025 Announcement	Keynote Chair : Piqueira/Spina

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