

Hello World!

The SMART NEtworks and ServiceS for 2030 (SMARTNESS) contract between FAPESP/Ericsson/UNICAMP, with the intervention of Funcamp, was finally successfully signed and the Engineering Research Center (ERC) officially started on April 1, 2023. With funding for ten years, for a total around five million dollars, divided half-half between FAPESP and Ericsson, SMARTNESS joins the [**FAPESP Research and Engineering Centers \(CPE\) program**](#) with focus on one of the core aspects of any engineered system: connectivity.

The SMARTNESS center was conceived by [**Prof. Christian Rothenberg**](#) from FEEC at UNICAMP in collaboration with Ericsson researcher Dr. Maria V. Marquezini, and includes researchers and students from FEEC/UNICAMP, the Institute of Computing (IC) at UNICAMP, UFSCAR, IME/USP and Ericsson. The project's budget includes the payment of several scholarships, for doctorates, master's degrees, IC and post-doctorates, as well as state-of-the lab equipment in the areas of networking and computing.

Among other objectives, SMARTNESS aims to attract new scientists, create a reference center and promote an ecosystem to create startups, through startup days for young entrepreneurs; attract Post-docs and Visiting Professors of high international level, promote joint-calls with international organizations for student exchange, contribute to the Advanced Science Schools, promote hackathons and challenges related to the artifacts produced by the Center, as well as Summer Schools. The aim of these events is to explain the most important aspects of SMARTNESS, such as Robotics, 5G, industrial AI IoT/4.0, Cloud Computing, virtual reality (VR), augmented reality (AR) and mixed reality (MR) and to showcase technologies and solutions developed in the project.

These solutions can bring benefits to the elderly and people with disabilities, as well as the general public. Other lines of action will be new courses for undergraduate programs and Continuing Teacher Training. The Centre is also planning, among other events, the promotion of an Ericsson Research Day, organized globally, with demonstrations from more than 10 countries around the world. SMARTNESS will also act strongly in technology transfer and knowledge transfer.

Various types of scientific events will be organized by the Center, and it is intended that researchers and students from the SMARTNESS Center will take part in events, conferences, seminars and workshops in Brazil and around the world, in order to publicize the Center's activities and learn about the international state-of-the-art.

Since the agreement was signed and implemented, SMARTNESS has submitted and approved 10+ FAPESP BCO grants (linked to the Contract) and 20+ Ericsson grants through Funcamp. Researchers and students have already taken part in **SBRC 2023**, last May, presenting two demos and organizing the 1st **SMARTNESS Hackathon**, giving students the opportunity to work on data science challenges around real 5G and Youtube data sets and win several prizes. Also on the same occasion, the first meeting of SMARTNESS researchers was held on 26/05/23.

Last June, there was an international event in Madrid, **9th IEEE Netsoft 2023** which was attended by SMARTNESS investigators and students, who presented 04 papers at this international conference. **Prof. Fabio Verdi** acted as TPC co-Chair and Prof. Christian Rothenberg was Keynote co-chair and participated as guest lecturer at Universidad de Alcalá, Spain.

Since the project was signed, the SMARTNESS researchers have published papers in high impact journals and international events, organized scientific events, among other dissemination results.

SMARTNESS has also launched its new visual identity and **website**, featuring the project vision, approach and results along with **scholarship opportunities**, which were also announced on **FAPESP website**.

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Participation at SBRC 2023, Brasilia, Brazil



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SMARTNESS participated in the annual event Simpósio Brasileiro de Redes de Computadores e Sistemas Distribuídos (**SBRC**), carried out by Sociedade Brasileira de Computação (SBC) and by Laboratório de Redes de Computadores (LARC). This year, 2023, the 41st edition of the event took place at Brazil's capital, Brasília, from May 22nd to 26th.

The group's presence came about through two posters (presented at the local exhibition environment), a workshop at the Technical Session, and by organizing and operating the Hackathon SMARTNESS / 5G Dataset Challenge.

Participation at IEEE NetSoft 2023, Madrid, Spain



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Recently the members of the Information and Networking Technologies Research and Innovation Group (INTRIG) of UNICAMP participants of SMARTNESS, including principal investigator Prof. Christian Rothenberg and Co-PI Prof. Fabio Verdi (UFSCar) participated in the 9th IEEE International Conference on Network Softwarization (NetSoft 2023) held in Madrid, Spain from June 19th to June 23rd, contributing with papers and demo. Profs. Christian and Fabio contributed to the organization committee of NetSoft and co-authored a number of research papers and demos.

NetSoft has established itself as a major platform for researchers and professionals to showcase their cutting-edge work and exchange ideas in Network Softwarization over the past few years. This year's conference theme was "Boosting Future Networks through Advanced Softwarization."

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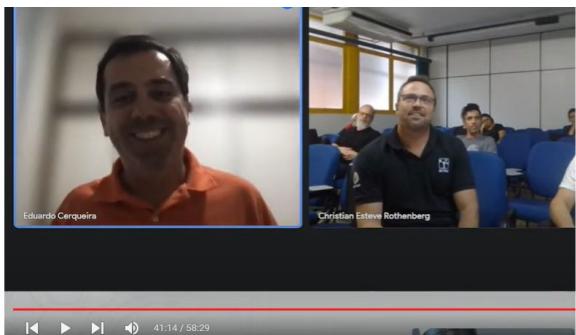
Participation at IEEE ICC 2023, Rome, Italy



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MSc. student Ariel Goés de Castro represented SMARTNESS at the 2023 IEEE International Conference on Communications ([IEEE ICC 23](#)) in Rome, Italy, from May 28th to June 1st, where he presented the paper “Taking detours: An in-network fault-tolerant probing planning for In-band Network Telemetry”. The focus of ICC 23 is “Sustainable Communications for Renaissance”, featuring a comprehensive high-quality technical program including 13 symposia and a variety of tutorials and workshops.

Invited lecture on Holographic-Type Communication



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SMARTNESS associate researcher Prof. Eduardo Cerqueira (UFPA) delivered a guest lecture at FEEC-UNICAMP to introduce Immersive communications in 6G systems, highlighting Holographic-Type Communications (HTC). The Guest Lecture was held in the FEEC-UNICAMP graduate class IA377 (Seminars in Computer Engineering), ministered by Prof. Christian Esteve Rothenberg, Principal Investigator of SMARTNESS.

Bio: Eduardo Cerqueira received the Ph.D. degree in informatics engineering from the University of Coimbra, Portugal, in 2008. He is now an Associate Professor with the Faculty of Computer Engineering and Telecommunications, Federal University of Pará, Brazil.

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Participation in FUTURECOM 2023



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The participation of Smartness 2030, through its Principal Investigator (PI), Prof. Christian Esteve Rothenberg, focused on **presenting** use case and connectivity perspectives for 6G.

In short, the role of connectivity will increase dramatically. From now on, the research strands will work through case uses based on Science and Tech Driven approaches, such as Sustainability (SUS), Cognitive Architectures (CA), Customized Edge Computing (CEC), Trustworthiness (TRU): Security, Privacy, Safety and Ethics; Fluid Control and Data Plans (FCD). 6G will bring immersive communication together with the Internet of Senses.

Organization of “HELLO FABRIC” Tutorial



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On Monday, October 23, several PhD and MSc students of the Faculty of Electrical Engineering and Computer Science (FEEC) and the Institute of Computer Science (IC) at the UNICAMP, participated in the “Hello FABRIC” Tutorial, delivered by Marcos Schwarz from RNP Brazil in the LCA lab at FEEC/UNICAMP.

In this tutorial, a tour of the portal and the knowledge base of the FABRIC tool was explained at the beginning, as well as an introduction to Jupyter/FABlib. Each exercise was accompanied by a notebook with a step-by-step description of how to perform the exercise, from importing the libraries, creating the slice experiment, running the experiment and finishing the slice.

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Participation in the First Edition of São Carlos Experience



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Prof. Fábio L. Verdi attended the First Edition of [São Carlos Experience](#) on October 25 and talked about his research topics, 5G/6G and the CPE SMARTNESS.

The São Carlos Experience was created to strengthen connections and widely publicize companies, people, institutions, businesses and inspiring local and global cases, through lectures, debates, workshops, shows, artistic interventions, tourism and lots of gastronomy.

Participation at IEEE NFV-SDN 2023, Dresden, Germany



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PhD student Fabricio Rodriguez showcased his research contributions and findings during the 9th IEEE NFV-SDN 2023 held from 7-9 November 2023 in Dresden, Germany.

During the Doctoral Symposium, Fabricio showcased his research contributions and findings with the work: **“Offloading Robotic and UAV applications to the network using programmable data planes”**.