Research

The Software/Hardware Integration Lab (LISHA) at the Federal University of Santa Catarina has been doing research related to Application-driven Embedded System Design (ADESD) and the Embedded Parallel Operating System (EPOS) since 2001. Currently, the following research lines are actives:

- Computer Networks
- Operating Systems
- Computer Architecture and Organization
- Embedded and Cyber-Physical System Design

Projects

- **AutoDL — Secure and Privacy-Aware Data Lake for Vehicle Data Storage and Processing** (2024-2027): Rota 2030
- **Auto5G — Intelligent Vehicle Telemetry and Supervision System** (2023-2026): Rota 2030
- **IASE — Intelligent Acquisition and Analysis System for ECUs** (2021-2025): Rota 2030
- **SDAV — SmartData for Autonomous Systems**
- **OBNZip — Intelligent Seismic Data Compressor for OBNs** (2022-2026): Petrobrás/ANP
- **SmartData IoT Platform** (2017- )

Finished Projects

- **INCANTO PrINT: IoT for Smart Manufacturing** (2019-2024): CAPES
- **MoHear: Models for Hearing Aids and Cochlear Implants** (2018-2020): CAPES
- **EUBrazilCloudFORUM: Fostering an International dialogue between Europe & Brazil** (2016 - 2017): CTIC/RNP
- **Smart Solar Building** (2014 - 2018): CNPQ
- **Space-SoC: On-board Computer for Space Applications** (2010 - 2012): Brazilian Space Agency (AEB)
- **Architecture Communication ICIP60** (2010 - 2012): FAPEU/Intelbrás
- **Corporate Video Conferencing** (2010 - 2011): FAPEU/Intelbrás
- **OS support for WSN and Embedded System Debugging** (2011 - 2013): CAPES/DFAIT
- **FlexES: Flexible Embedded Systems** (2010 - 2013): CNPq
- **eSDR: Embedded Software-defined Radio** (2009 - 2013): Dígitro
- **CIA² Building Smart Cities: from Environmental Instrumentation to Application Deployment** (2011 - 2013): CTIC, National Network on Smart Cities
- **RH-TVD: Special Graduate Program for Digital TV** (2009 - 2012): CAPES
  - ICs, Hardware and Firmware for DTV (UFRGS)
  - DSP and Embedded Systems (UNICAMP)
- **Rede ALTATV: an Open, Free, Scalable Set-top Box Architecture for DTV and IPTV** (2009 - 2010): CTIC, National Network on Smart Cities
- **SBTVD: Brazilian Digital Television System**
- I2TV: Interactive TV for Internet2 (2002 - 2004): CNPq, UFPB, USP
- ParaBioInfo: Parallel Applications in Bioinformatics (2003 - 2004): CNPq, FioCruz
- Centro Integrado Multidisciplinar de Pesquisas em Bioinformática de Santa Catarina (2002 - 2003): CNPq
- 3D Visualization of Magnetic Markers in Noninvasive Gastrointestinal Transit Monitoring (1992): PTB / DAAD

Publications