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 active:

- 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 ECU (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
- **EUBrasilCloudFORUM**: Fostering an International dialogue between Europe & Brazil (2016-2017): CTIC/RNP
- **Smart Solar Building** (2014-2018): CNPQ
- **IP-Sense**: Secure Motion Detection Sensors for Building Automation (2014-2016): FAPEU/Khomp
- **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
- **IPTV STB**: Design and Implementation of a Set-top Box for IPTV (2008-2009): FAPESC
- **SAM**: Layered Scalable Video Codec (2006-2008): FINEP, UFRGS
- **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