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 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

- 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
- CIA² Building Smart Cities: from Environmental Instrumentation to Application Deployment (2011 - 2013): CTIC, National Network on Smart Cities
  - 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
- Rede H.264 SBTVD (2008 - 2010): FINEP, UFRGS
- SBTVD: Brazilian Digital Television System
• CODECSUL: Scalable Codec (2005 - 2006): FINEP, UNISINOS
• I2TV: Interactive TV for Internet2 (2002 - 2004): CNPq, UFPB, USP
• SNOW: Scalable Network of Workstations (2001 - 2004): CNPq / BMBF, TU-Berlin, FhG FIRST, UEN
• ParaBioInfo: Parallel Applications in Bioinformatics (2003 - 2004): CNPq, FioCruz
• AutoFlash: Software Update in Automobiles (2002 - 2003): FAU
• Centro Integrado Multidisciplinar de Pesquisas em Bioinformática de Santa Catarina (2002 - 2003): CNPq
• Application-Oriented System Design (1997 - 2001): UFSC /CAPES/GMD-FIRST
• 3D Visualization of Magnetic Markers in Noninvasive Gastrointestinal Transit Monitoring (1992): PTB / DAAD

Publications