



Federal University of Santa Catarina
Software/Hardware Integration Lab
Call for Participation



Date: Apr 16, 2015

Time: 13:30

Place: INE105

Help!

My identical processors are very different from each other:
Software strategies to handle hardware variation in embedded
systems

Lucas F. Wanner

Instance and temperature-dependent variation, particularly in power consumption, has a direct impact on application quality and system lifetime for battery powered, energy constrained systems. In this talk we discuss software approaches to handle variability in power consumption of embedded systems. We measure and characterize variation in active and leakage power for contemporary embedded processors, introduce tools for the evaluation of variability-aware software, and focus on two variability-aware software approaches: task activation control through variability-aware duty cycle scheduling and system-driven algorithmic choice.

Lucas Wanner (BS UFSC'04, MS UFSC'06, PhD UCLA'2014) works at the intersection of hardware and software systems, particularly in runtime systems for embedded applications, energy optimization, and handling of heterogeneity and variability in hardware. Dr. Wanner is currently a post-doctoral scholar at INE/UFSC and serves as Executive Director of the NSF Variability Expedition (<http://www.variability.org/>), a 5-year, multi-university initiative to tackle the problem of process and environmental variations with nano-scale semiconductor devices. Publications and further information are available at <http://www.lucaswanner.com/>.

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