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POSGRADO

A Configurable Open-Source RISC-V Processor

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Entrada libre hasta completar el aforo

Resumen:

Wally is an open-source RISC-V processor that is configurable, runs Linux, and is accompanied by detailed microarchitectural descriptions and figures in a forthcoming textbook: RISC-V System-on-Chip Design. These features make Wally ideal for both the classroom and research. Because its configurations range from a small rv32e embedded core up to a high-performance rv64gc core, Wally can be used in small, low-power systems or for performance-sensitive applications. Also, because Wally is accompanied by detailed descriptions of microarchitectural design choices, users may also expand or swap in other algorithms or design choices to optimize for power, performance, or area. We developed Wally to provide in-depth coverage on how to design and optimize microprocessors and use them in a system-on-chip, applying contemporary design and verification tools. The forthcoming book describes detailed designs and tradeoffs for the functional blocks in and around a processor. Presently, no textbook on the market describes microarchitecture in sufficient detail to fully implement a non-toy system. This talk will give an overview of the Wally processor and SoC and its key features.

Sobre Sarah Harris:

Sarah L. Harris is a Professor of Electrical and Computer Engineering at the University of Nevada, Las Vegas. She completed her M.S. and Ph.D. at Stanford University. Before joining UNLV in 2014, she was a faculty member at Harvey Mudd College for ten years. She has also worked at Hewlett Packard, Nvidia, and the Technical University of Darmstadt and has collaborated with other companies including Southwest Research Institute, Intel, and Imagination Technologies. She is the co-author of three popular textbooks, her most recent being Digital Design and Computer Architecture: RISC-V Edition (2021, Morgan Kaufmann). She is currently the principal or co-principal investigator on three NSF grants. Her research interests include computer architecture and applications of embedded systems and machine learning to biomedical engineering and robotics.