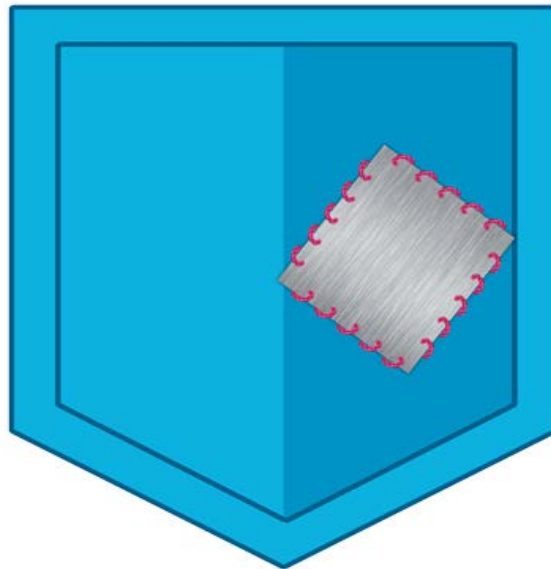


ADA PI Baris Kasikci receives \$1.8M grant for Ironpatch research. [Read more](#) »

IRONPATCH



Prof. Raghunathan now Silicon Valley Professor of Electrical and Computer Engineering

Raghunathan is internationally recognized for his work in the field of digital integrated circuits and systems. Over a 25-year period, he has made groundbreaking contributions in low-power electronics, secure embedded systems, hardware for artificial intelligence and brain-inspired computing. He is the associate director of the SRC/DARPA funded Center for Brain-inspired Computing (C-BRIC) and founding co-director of the Purdue-TSMC Center, leading the next generation of secured Microelectronics ecosystems. The Purdue University Board of Trustees ratified his appointment on Friday, August 7. [Read more](#) »

CHIPKIT: an agile, reusable open-source framework for rapid test chip development

The current trend for domain-specific architectures (DSAs) has led to renewed interest in research test chips to demonstrate new specialized hardware. Tape-outs also offer huge pedagogical value garnered from real hands-on exposure to the whole system stack. However, successful tape-outs demand hard-earned experience, and the design process is time consuming and fraught with challenges. As a result, custom chips have remained the preserve of a small number of research groups, typically focused on circuit design research. An ADA paper by Harvard and ARM describes the CHIPKIT framework - a reusable SoC subsystem which provides basic IO, an on-chip programmable host, memory and peripherals. The subsystem can be readily extended with new IP blocks to generate custom test chips. The authors also present an agile RTL development flow and outline best practices for full-chip validation across the entire design cycle. [Read more](#) »



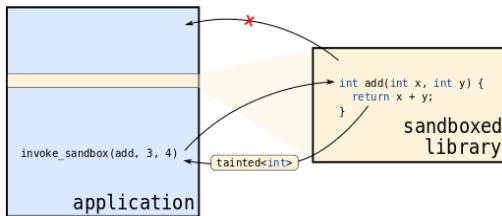
Agile and Open-Source Hardware



ASCENT's Ava Tan wins Best Paper Award at DRC 2020

Ava Tan, a PhD candidate in Prof. Salahuddin's research group at UC Berkeley has been awarded Best Paper Award at the 78th Device Research Conference (DRC) held in June 2020 for her paper, titled “*Reliability of Ferroelectric HfO₂-based Memories: From MOS Capacitor to FeFET.*” DRC is the longest running device research meeting in the world and brings together leading scientists, researchers, and students to share discoveries in device science, technology and modeling. Many of the first public disclosures of key device technologies have been made at DRC. [Read more](#) »

CONIX team receives USENIX Security Distinguished Paper Award for RLBox Work



Major browsers rely on dozens of third-party libraries to render audio, video, images, and other content. These libraries are a frequent source of vulnerabilities. To mitigate the threat, a CONIX team developed RLBox, a framework that minimizes the burden of converting Firefox so that it can securely and efficiently use untrusted code. RLBox employs static information flow enforcement, and lightweight dynamic checks, expressed directly in the C++ type system. It supports efficient sandboxing through software-based-fault isolation or multi-core process isolation. Performance overheads are modest and transient with only a minor impact on page latency as demonstrated by sandboxing performance-sensitive image, video, and audio decoding and decompression libraries. RLBox, using a WebAssembly sandbox, has been integrated into production Firefox by Mozilla. [Read more](#) »

A COVID success story by UC Santa Barbara student Athith Krishna

6 periods	20 nm p++ GaN (Mg: $9 \times 10^{19} \text{ cm}^{-3}$)		
	A nm p-AlGaN (Mg: $y \times 10^{19} \text{ cm}^{-3}$)		
	(A - x) nm UID-AlGaN		
	x nm AlN		
	8 nm UID-GaN	A	S1
	B nm p-GaN (Mg: $y \times 10^{19} \text{ cm}^{-3}$)	4	5.3
	A nm p-AlGaN (Mg: $y \times 10^{19} \text{ cm}^{-3}$)	B	4
	(A - x) nm UID-AlGaN		5.7
	x nm AlN	Al %	20%
	8 nm UID-GaN		24%
	8 nm p* GaN (Mg: $6 \times 10^{19} \text{ cm}^{-3}$)	x = 0, 0.7, 1, 1.4, 1.6	
	200 nm UID-GaN	y = 0.75, 1.5, 2, 2.5	
Semi-insulating GaN			

“Initially, this experiment was deemed a failure and ended last December,” said Athith Krishna, an ASCENT graduate student researcher under the direction of Prof. Umesh Mishra. “But the ceasing of all in-lab research in March allowed us to revisit all the unpublished data and re-analyze it in greater detail. We got some super interesting results and were able to discover something [new and exciting in our field](#). This experience has changed my thinking to a great degree. I was always used to defining a goal. If there was a failure, I'd analyze it to reach the goal, and never did I try to understand the failure, independently. The COVID break forced me to do just that, which has enlightened me and changed my research philosophy completely.” Learn more about his research on [Wide Band-gap FETs](#) » Well done, Athith!



SRC PI receives 2020 Arden L. Bement Jr. Award

Professor Kaushik Roy, Purdue, will receive the 2020 Arden L. Bement Jr. Award for significant accomplishments in pure and applied science and engineering. He is being honored for pioneering and field-defining research across neuromorphic (brain-inspired) computing devices, circuits and algorithms. [Read more](#) »

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