CONNECTIONS

**LATEST NEWS AND UPDATES FROM
SEMICONDUCTOR RESEARCH CORPORATION**

Early SRC Research Uncovered Rowhammer Technique

Security researchers at Google recently demonstrated a new variant of Rowhammer, a vulnerability in DRAM memory chips that allows hackers to access information on a wide range of devices. Rowhammer uses a bit-flipping technique that was first discovered in an SRC-funded study at Carnegie Mellon and presented in a 2014 paper that was co-authored by Intel. SRC is a consortium where member companies jointly define research needs, fund selected projects, and reap the rewards of early access to research results and publications. Every month, we highlight papers from the SRC website that are currently receiving the most views. Be sure to take a look at this month's list on page 4.

READ ON FOR MORE NEWS AND UPDATES!

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Research Buzz: Magnetostriction

A team led by the University of Michigan has developed a material that could power a new generation of efficient computing devices. Based on the property that makes fluorescent lights buzz, the material is made of a combination of iron and gallium. Read a feature in *Nanotechnology News* and learn details about the research in the published paper in *Nature Communications*.

A Different Approach to AI

Researchers from UC San Diego, UC Irvine, and San Diego State University were recently highlighted in *Semiconductor Engineering* for a paper that outlines a new hardware algorithm based on hyperdimensional computing, a brain-inspired computing model. The new algorithm, called HyperRec, uses data that is modeled with binary vectors in a high dimension.
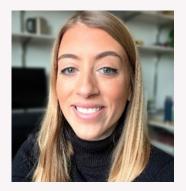
Awards and Recognition

Raychowdhury Now Motorola Solutions Foundation Professor

Arijit Raychowdhury is now the Motorola Solutions Foundation Professor at the Georgia Institute of Technology. A principal investigator or theme leader on 70 research projects at SRC, Dr. Raychowdhury's research focuses on low-power digital and mixed-signal circuit design, design of power converters and sensors, and exploring interactions of circuits with device technologies. Congratulations, Arijit!

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Biernacki Receives Lynn Conway Award

Congratulations to Lauren Biernacki, a Ph.D. candidate at the University of Michigan, for receiving the Lynn Conway Research Award at the 2021 Applications Driving Architectures (ADA) Annual Symposium. Biernacki demonstrated the VIP Benchmark Suite, which helps customers analyze and compare competing privacy technologies. The product was developed with principal investigator Todd Austin. Each year, ADA offers the award in honor of trailblazing computer scientist Lynn Conway whose pioneering work in chip-design forever changed the industry.

Manocha Named Top Scientist

Congratulations to Dinesh Manocha of the University of Maryland being named as a Top Scientist! This is well-deserved recognition for his pioneering research in Automotive Electronics. His research project tackles the complex issue of autonomous driving in dense urban environments, like those seen in India.

Chakrabarty Receives IEEE Award

Duke University's Krishnendu Chakrabarty was recognized for his groundbreaking research on design-for-test of system-on-chip and 3D integrated circuits, microfluidic biochips, and wireless sensor networks with the 2021 Vitold Belevitch Award from the IEEE Circuits and Systems Society (CASS). Congratulations, Krish!

Sen Earns Purdue's Faculty Excellence Award

Congratulations to Dr. Shreyas Sen on receiving the Faculty Excellence Award for Early Career Research from Purdue Engineering. As a previously funded Ph.D. student at Georgia Tech and researcher at Intel Labs, this is a well-deserved acknowledgement of his innovations in research and as an integral part of the CHIRP center focused on Heterogeneous Integration in Packaging.

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Forte Receives Yatauro Faculty Fellowship at UF

Dr. Domenic Forte, Associate Professor of the University of Florida and Director of the Florida Institute for Cybersecurity (FICS) Research SCAN Lab was awarded the Steven A. Yatauro Faculty Fellowship. Created to honor a faculty member who inspires students and is attempting to solve society's most challenging problems, the endowed fellowship will provide additional funding for the exploration of new and creative concepts in the lab. Congratulations, Domenic!

Book Release

New Book by Mark Tehranipoor

Renowned cybersecurity expert Dr. Mark Tehranipoor has a new book that's a #1 new release in the Computer Hardware Design category on Amazon. *Emerging Topics in Hardware Security* provides an overview of emerging topics in the field of hardware security, such as artificial intelligence and quantum computing, and highlights how these technologies can be leveraged to secure hardware and assure electronics supply chains.

Top 5 SRC Publications Viewed Across All Programs

Be sure to take a look at the papers that received the most views on the SRC website over the last six weeks. Members of the associated programs have early access to the pre-publications.

- Report on the Optimization of the Growth of Ferroelectric Superlattice (FE-SL) with 8 Polarization States that are Electrically Accessibler—SRC Pub ID P103206

- Resistivity Scaling in Epitaxial MAX-phase Ti4SiC3 (0001) Layers—SRC Pub ID P103339

- Gigantic Tunneling Magnetoresistance in Magnetic Weyl Semimetal Tunnel Junctions—Pub ID P102460

- Petascale XCT: 3D Image Reconstruction with Hierarchical Communications on Multi-GPU Nodes—SRC Pub ID P103063

- Report on Exploring Wet Etching Reactions in Nanoconfinements— SRC Pub ID P103432

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