

CONNECTIONS

LATEST NEWS AND UPDATES FROM
SEMICONDUCTOR RESEARCH CORPORATION

TECHCON 2021

SEPTEMBER 13-16 • VIRTUAL

It's Time for TECHCON!

TECHCON 2021 will be virtual this year and free to attend for all members. TECHCON 2021 will showcase cutting-edge student research on five tracks that align with the seismic shifts outlined in SRC's [Decadal Plan for Semiconductors](#). Each day will kick off with the Decadal Dish, a new segment with industry experts that digs into each of the seismic shifts, the real-world challenges we're facing, and how research can help us meet this moment. [Register today!](#)

ICYMI: Todd Younkin with DOE

SRC President and CEO Todd Younkin recently joined a roundtable discussion with DOE Deputy Secretary David Turk. "A single dollar invested in semiconductor hardware returns a 10 to 15x multiplier in tech innovation so, in a sense, the \$54 million announced today is actually a \$500 million dollar investment in our collective hardware future." [Watch the recast.](#)

READ ON FOR MORE
NEWS AND UPDATES!

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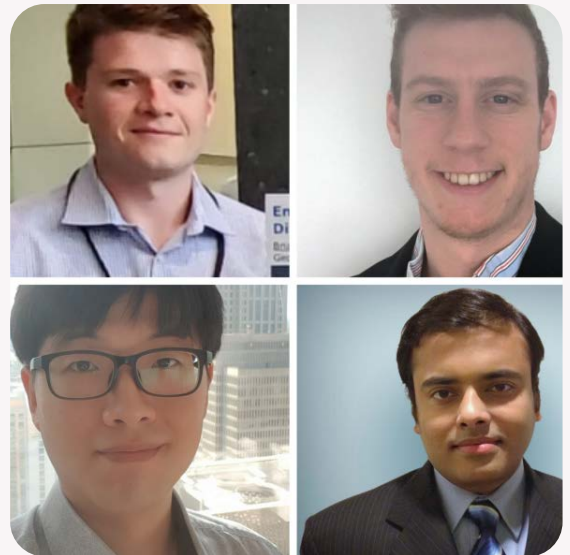
Women-in-VLSI Interview with Srabanti Chowdhury

Read an inspiring interview with Stanford University professor Srabanti Chowdhury in the latest [IEEE VLSI Circuits & System Letter](#), edited by Intel's Mandy Pant. A JUMP researcher in ComSenTer, Professor Chowdhury's [research](#) focuses on heterogenous integration of diamond with Gallium Nitride to enable-efficient power delivery in high-performance systems. Looking back and forward, Dr. Chowdhury discusses what motivated her career path and her hopes for the future of the field.



ASCENT/ C-BRIC Team Wins Best Paper at ISPLED

A collaborative research effort from JUMP centers ASCENT and C-BRIC led to [high honors](#) at this year's ACM/IEEE International Symposium on Low Power Electronics and Design (ISLPEDE 2021.) Research team Brian Crafton, Samuel Spetalnick, Dr. Jong-Hyeok Yoon and Professor Arijit Raychowdhury earned Best Paper Award for "[Statistical Optimization of Compute In-Memory Performance Under Device Variation.](#)" Many congratulations!



A Note from Allison in SWENext

[Allison Osmanson](#), a Ph.D. student in Materials Science and Engineering at UT Arlington, recently [shared her experience](#) as an SRC Research Scholar in SWENext, a K-8 newsletter for the Society of Women Engineers. "SRC brings companies like Texas Instruments, Samsung Semiconductor, Intel Corporation, and NXP together with universities. They provide research students like me with projects to work on. We get to go to conferences, present our research, and also get to meet important people in the industry."





Narayanan to Lead New AI Center

Vijay Narayanan will serve as founding director of the [Center for Artificial Intelligence Foundations and Engineered Systems \(CAFE\)](#) at Penn State. "AI has the potential for transformative impact on a wide variety of engineered systems," says Narayanan, "including energy-efficient buildings; smart prosthetic and assistive devices; new meta-materials; robust manufacturing pipelines; and next-generation autonomous underwater vehicles." [Learn more.](#)



Chakrabarty Wins Madni Award

Congratulations to Duke University's Krish Chakrabarty on being awarded the IEEE-HKN Madni Award for "impactful research contributions in micro-fluidic biochips, technology transfer, and student mentoring." This is the highest honor given by IEEE-HKN to a practitioner. In 2018, Krish received [SRC's Technical Excellence Award](#) in recognition of his pioneering solutions to test challenges for 3D integrated circuits.



Congratulations to Damla Senol Cali

Celebrating [Damla Senol Cali](#) on the successful defense of her Ph.D. thesis on "[Accelerating Genome Sequence Analysis via Efficient Hardware/Algorithm Co-Design](#)" at Carnegie Mellon. Her research, [Memory System Design for AI/ML Accelerators & ML/AI Techniques for Memory System Design](#) was guided by [Prof. Onur Mutlu and Prof. Saugata Ghose](#) as part of SRC's AI Hardware research program.



STARnet Researcher Launches Startup

[Stochastic](#) aims to bring the latest research on machine learning and hardware acceleration out of the lab and into the business world. Founder Glenn Ko was a STARnet researcher at the SRC-funded SONIC center and JUMP researcher at ADA. SRC is proud to be a supporter of Glenn's early research and wish him much luck. Congratulations!



Shimeng Yu Survey in IEEE Magazine

SRC 2019 Young Faculty Award winner Dr. Shimeng Yu surveyed SRAM- and RRAM-based compute-in-memory (CIM) prototypes for deep learning in IEEE Circuits and Systems Magazine. Some of his ongoing research tasks for JUMP (ASCENT) focus on implementing prototypes in RRAM for LeNet5 and AlexNet. Explore what the future of CIM holds for improving the efficiency of AI devices.

In the Media

Detecting Ransomware Podcast

Don't miss this new podcast from Nitin Pundir, a Ph.D. student at the University of Florida, about his work "RanStop: A Hardware-assisted Runtime Crypto-Ransomware Detection Technique." His Hardware Security research is being advised by Dr. Mark Tehranipoor and is instrumental in finding automated ways of detecting security vulnerabilities. Also available on Apple Podcasts and Spotify.



Top 5 SRC Publications Viewed Across All Programs

Don't miss 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.

- Ultra-Low Power 32kHz Crystal Oscillator: Fundamentals and Design Techniques—SRC Pub ID [P104741](#)
- Demonstration of 10Ghz Epi-Baw Filters on the Aln/Sic Hemt Platform—SRC Pub ID [P104495](#)
- Report on DNN-Assisted MIMO Control System Design—Pub ID [P104263](#)
- Cryogenic RF CMOS on 22nm FDSOI Platform with Record $f_T = 495\text{GHz}$ and $f_{MAX} = 497\text{GHz}$ — SRC Pub ID [P104383](#)
- One-Shot Learning with Memory-Augmented Neural Networks Using a 64-kbit, 118 GOPS with RRAM-based Nonvolatile Associative Memory—SRC Pub ID [P103267](#)