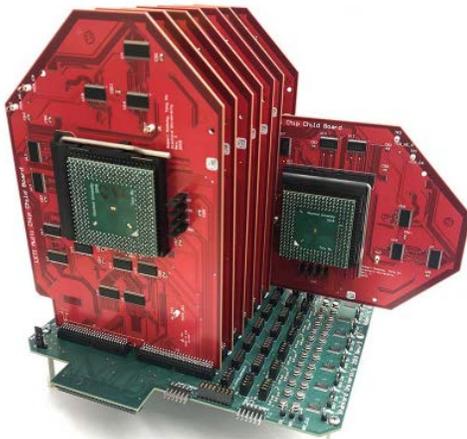


The Full 2030 Decadal Plan for Semiconductors is now Available [here](#) »



(Image credit: Robert M. Radway, Stanford)

## Towards Ideal AI Chip

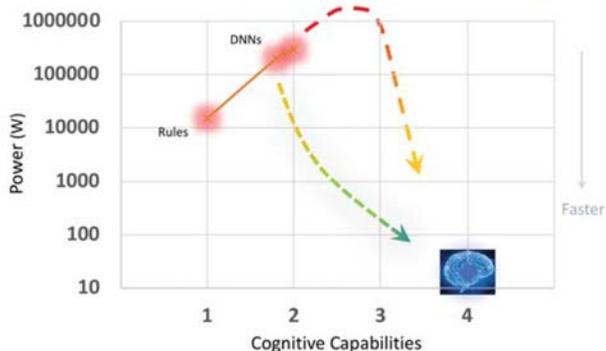
A group of researchers led by professor Subhasish Mitra (GRC E2CDA program) have developed what could become next-generation AI chips by demonstrating a deep neural network inference system called *Illusion*. The system contains processors built with resistive memory in a 3D stack, which allows for a dramatic reduction in both the energy and time of data transfer. “We are already underway with a new more capable prototype,” says SRC student [Robert Radway](#), who was first author on a paper describing Illusion that appeared in [Nature Electronics](#). [Read more](#) »

## SRC Funded Research Featured at ISSCC 2021

SRC member companies and supported research are an integral part of the IEEE International Solid State Circuits Conference ([ISSCC](#)). This year, TSMC chairman, Dr. Mark Liu, will give a plenary talk titled “Unleashing the Future of Innovation.” In addition, SRC HWS-supported Professor Ingrid Verbauwhede (KU Leuven) is giving a tutorial on evaluation the security of three different classes of circuits: true random number generators, physically unclonable functions, and side-channel evaluation of cryptographic implementations. SRC highlights five papers supported in various research programs. [Read more](#) »



## Next Generation(s) AI Challenge



(Image credit: Carlos H. Diaz, TSMC)

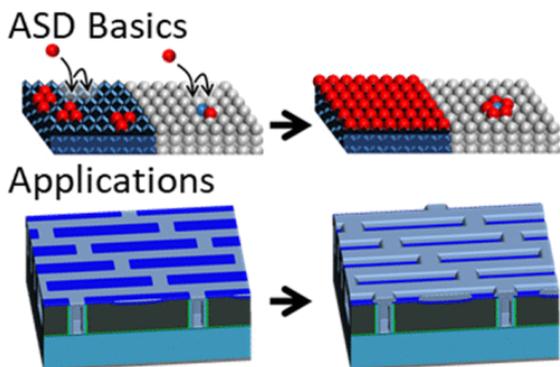
## The Chip Industry’s Next-Gen Roadmap

Todd Younkin, the new President and CEO of SRC, sat down with Mark LaPedus of Semiconductor Engineering to talk about engineering careers, R&D trends, and what’s ahead for chip technologies over the coming decade according to SRC’s Decadal Plan. In that conversation, Todd shed light on several next-gen projects that SRC has been driving, which involves everything from chiplets to hyperdimensional computing and mixed reality. Learn more [here](#) »



## February 16th SRC Industry-led talk – Register Now!

Rajeev Malik, Program Director, IBM Quantum, will introduce the topic of quantum computing - why are we all taking about it, where and when could it be useful and what do we all need to do to get ready? [Read more](#) »

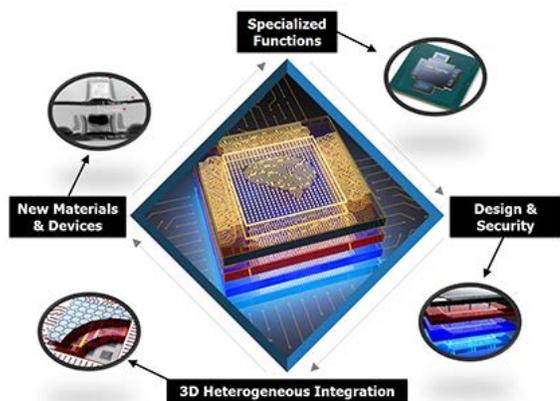


## SRC Researchers’ Paper one of the Most Downloaded in 2020 American Chemical Society (ACS) – Chemical Materials Journal

Gregory Parsons (NCSU) and Rob Clark (TEL) published a research paper titled “Area-Selective Deposition: Fundamentals, Applications, and Future Outlook” in ACS-Chemical Materials. The [article](#), viewed over 2300 times in 2020, has garnered significant interest from the ASD community. Due to his pioneering work, Prof. Parsons has recently been awarded two additional research projects in the Nanomanufacturing Processes and Materials (NMP) program. See the full list of ACS-Chemical Materials most downloaded research papers in 2020 [here](#).

## DARPA’s ERI Developing Breakthrough US National Electronics Capabilities

A recent nice reflection on the \$1.5B, 5-year DARPA Electronics Resurgence Initiative (ERI), which looks to drive far-reaching improvements in electronics performance that go well beyond the limits of traditional scaling. In addition to SRC’s Joint University Microelectronics Program (JUMP) that MTO and its corporate partners have organized to build up a fundamental research base in the fields underlying future microelectronics technologies, the article discusses at length a number of DARPA-led ERI investments, many involving SRC member companies and SRC faculty researchers. A good historical context for SRC’s broader audience to consider where things go from here. [Read more](#) »



## SRC Researchers Receive Best Paper Awards at ICCAD 2020



Congratulations to SRC researchers for receiving both best paper awards at ICCAD 2020 last November. Named after William J. McCalla, the recognition is split into both a front-end topic and a back-end topic of computer-aided design. Receiving the front-end award are Sujit Kumar Muduli, Gourav Takhar and Pramod Subramanyan, Indian Institute of Technology Kanpur for their paper titled “[HyperFuzzing for SoC Security Validation](#).” Receiving the back-end award are Adam Issa and Farid Najm, Univ. of Toronto, and Valeriy Sukharev, Siemens EDA, for their paper titled “[Electromigration Checking Using a Stochastic Effective Current Model](#).” These projects were supported by SRC through the [India Research Program](#) and the [Computer-Aided Design and Test Program](#). [Read more](#) »



## SRC Professors Recognized in 2020 ACM Fellow Class

ACM, the Association for Computing Machinery, has promoted individuals to the level of 2020 ACM Fellow for wide-ranging and fundamental contributions in areas including artificial intelligence, cloud computing, computer graphics, computational biology, data science, human-computer interaction, software. SRC recognizes and extends congratulations to those who are currently supported through JUMP and GRC programs. Included in the [2020 class](#) are [David Brooks](#) (Harvard), [Yiran Chen](#) (Duke), [Lizy John](#) (UT Austin), and [Keshab Parhi](#) (Minnesota).



## Former SRC Student Recognized for Impactful Doctoral Dissertation

Nasim Imtiaz Khan, who received his doctoral degree in electrical engineering from Penn State in 2019, recently received the 2020 Test Technology Technical Council (TTTC) Edward J McCluskey Doctoral Thesis Award for his dissertation, “Assuring Security and Reliability of Emerging Non-Volatile Memories.” His research focused on assuring security and privacy of emerging NVM. Upon receiving his doctorate, Khan joined the Intel Corporation NVM solutions group. [Read more](#) »



## CONIX and ComSenTer PI Named 2021 IEEE Fellow

Prof. Danijela Cabric, a collaborative member of the ComSenTer and CONIX Centers and UCLA Samueli Professor of electrical and computer engineering, has been elected as a 2021 IEEE Fellow for her contributions to theory and practice of spectrum sensing and cognitive radio systems. Her award-winning JUMP research and students can be found [here](#). Well done, Prof Cabric! [Read more](#) »



## Automotive Electronics Paper Receives Distinguished Paper Award at International Joint Conference on Artificial Intelligence (IJCAI) 2020

Shlomo Zilberstein, U Mass Amherst, and his team have been awarded IJCAI’s 2020 Distinguished Paper Award. Their paper titled “A Multi-Objective Approach to Mitigate Negative Side Effects” focuses on formulating the problem of mitigating the impact of Negative Side Effects (NSE) as a multi-objective Markov decision process with lexicographic reward preferences and slack. The slack denotes the maximum deviation from an optimal policy with respect to the agent’s primary objective allowed in order to mitigate NSE as a secondary objective. [Read more »](#)

## Top 5 SRC Publications Viewed Across all Programs – Are you Missing out?

The following papers 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.

Examination of the Interplay Between Polarization Switching and Charge Trapping in Ferroelectric FET	SRC Pub ID <a href="#">P102016</a>
A 71-to-86GHz Packaged 16-Element by 16-Beam Multi- User Beamforming Integrated Receiver in 28nm CMOS	SRC Pub ID <a href="#">P102553</a>
Interface Chemistry and Band Alignment Study of Ni and Ag Contacts on MoS2	SRC Pub ID <a href="#">P102004</a>
Narrow Interconnects: The Most Conductive Metals	SRC Pub ID <a href="#">P102013</a>
SWIFT: Small-World-based Structural Pruning to Accelerate DNN Inference on FPGA	SRC Pub ID <a href="#">P102092</a>

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