

CONNECTIONS

LATEST NEWS AND UPDATES FROM
SEMICONDUCTOR RESEARCH CORPORATION



The Semiconductor Research Corporation (SRC) and Defense Advanced Research Projects Agency (DARPA) have announced a new solicitation for the Joint University Microelectronics Program 2.0. JUMP 2.0 addresses challenges identified in the '2030 Decadal Plan for Semiconductors', and will advance information and communication technologies (ICT) critical to our economic growth and national security. The program launches a new chapter in SRC's history of public-private partnership with DARPA, leading semiconductor industry and ICT companies, and the defense industrial base and seeks to create collaborative, multidisciplinary research centers at outstanding U.S. universities. <https://www.src.org/compete/>

READ ON FOR MORE
NEWS AND UPDATES!

[2021 CEO Retrospective - 2](#)

[Tech Transfer Success Story - 3](#)

[Celebrating Failure - 3](#)

[Faculty/Student Highlights - 4](#)

2021 Retrospective

A Message from President & CEO, Todd Younkin

As I reflect upon 2021, I'm thrilled at the results I can see from SRC's research and workforce development programs. In particular, highlights from the year include:

- We helped 191 students get hired into SRC member companies as interns or full-time hires.
- We registered 137 instances of member vetted technology transfer across our programs, including 47 instances that simultaneously impacted multiple member companies.
- We set aggressive goals for the decade through our release of the 2030 Decadal Plan for Semiconductors, our Broadening Participation Pledge, and our Commitment to Sustainability.
- We added 5 new SRC members, bringing us to 26 member companies. The members added are MediaTek, ASM International, Applied Materials, Chemonics, and HRL Laboratories.
- And, we created and released the JUMP 2.0 research program with DARPA and industry.

Under normal circumstances, this would qualify as an amazing year. However, there are two things that trouble me as we head into 2022.

First, the pandemic continues to take a toll on our connectivity, emotional well-being, and creativity, which is not ideal for our people, results, and legacy. We are a "knowledge-creation" group made up of innovators and explorers that benefit from exposure to new ideas, new people and partners, new technology, and new places. While IT has allowed us to perform admirably the last two years, there is significant value to human interaction that is difficult to measure or even recognize (until it is taken away). Now that COVID-19 is evolving into a global endemic, we must safely resume face-to-face events, with engaging content for both local and remote attendees. We must work harder to stay connected and informed on rapidly changing next-gen technologies, or we risk falling further behind.

Second, while it has been wonderful in 2021 to see semiconductors and manufacturing "back in vogue again," to date there has been a lot of talk and far too little action, at least in the United States. Microelectronics and advanced packaging technologies lie at the heart of the next industrial revolution and, as an extended ICT community, we must do everything we can to empower and encourage "hard-tech" R&D and workforce development by increasing our investments to this critical sector. SRC has built a sturdy foundation for the next semiconductor era, but I believe if we fail to act today, we will concede our position of technology leadership.

Wishing you and yours a happy and prosperous New Year!

Collaboration between Researchers and Industry is Key

At SRC, we strive for research that creates meaningful technology transfer between industry and academia. This month, we celebrate "Novel Electrical Discharge Plasma-based Process for the Treatment of Fab Wastewater" (2818.008), led by Profs. Selma Mededovic and Thomas Holsen of Clarkson University, for "Demonstrating Viability." Their team and students, including 2021 Simon Karecki Award winner Ms. Osakpolo "Faith" Isowamwen, have developed an electrical discharge plasma process that is the most effective and efficient technology for the removal of Per- and Poly- Fluoroalkyl Substances (PFAS) from factory wastewater. According to the Clarkson team, "the close engagement between industry liaisons from Texas Instruments, IBM, GlobalFoundries, and Intel, has been invaluable to the success of the project." This is also a great example of SRC's Commitment to Sustainability. Well done, all!



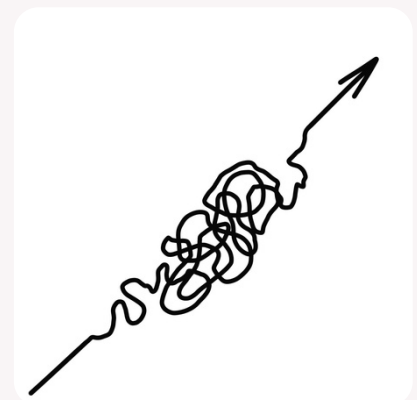
Internships Pave Way for SRC Research Scholars

Working directly with SRC Research Scholars is an invaluable benefit of SRC membership. Many companies take advantage of the close relationships formed to offer internships to qualified students. In 2021, over 170 undergrads, graduate students, and postdoctoral researchers landed internships at SRC member companies, leading to numerous hires upon graduation. Celebrate with our community by tagging #srcorg and your new company!



“I have not failed. I've just found 10,000 ways that won't work.” - Thomas A. Edison

Failure is a natural part of the iterative, creative process that is research. In 2021, SRC launched a new event that shines the spotlight on the benefits of celebrating failure. By openly sharing our experiences, we learn how failure breeds success. The Failure to Success workshops provide an opportunity for Professors and others to demonstrate how failure has contributed to success in their careers. Upcoming events as well as prior recordings are available to the SRC community.



Georgia Tech Student Honored at 58th DAC

Zishen Wan, a PH.D. student at Georgia Tech who has been working with JUMP's C-BRIC and ADA Centers, recently presented at the 58th Design Automation Conference as a DAC Young Fellow. The Young Fellows program is "designed to kickstart young students in the field of EDA." Zishen also received the Best Research Video Award for his paper presentation.



Notre Dame Student Wins IEDM Award

Khandker Akif Aabrar, graduate researcher at University of Notre Dame, has won the IEEE Brain Best Paper Award at IEDM 2021 for their work, "BEOL Compatible Superlattice FerroFET-based High Precision Analog Weight Cell with Superior Linearity and Symmetry." Khandker has been working with advisor, JUMP Center Director Prof. Suman Datta, and also collaborating with researchers from Prof. Shimeng Yu's group and Prof. Asif Khan's group at Georgia Tech. This work represents the power of cross-disciplinary collaboration within the SRC research community.



Two Time Technical Excellence Award Winner Honored by NAI

CMU veteran Dr. Larry Pileggi has been elected as a Fellow of the National Academy of Inventors, the highest professional distinction given to academic inventors. Pileggi began working with SRC while still a graduate student in the SRC-CMU Center of Excellence for CAD and ICs, and proceeded to lead multiple SRC research projects after graduating, including the C2S2 Focus Center. He received the SRC Technical Excellence Award not once but twice (1991, 1999) and was given the SIA/SRC University Research Award in 2015.

