

MARCH 2022

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LATEST NEWS AND UPDATES FROM
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Younkin Shares SRC's Vision for the Heterogeneous Future in IEEE Keynote

The IEEE Electronics Packaging Society's Fifth Annual Symposium on Heterogeneous Integration was held virtually on February 23rd-25th. SRC President and CEO Todd Younkin gave a keynote in which he outlined SRC's purpose and vision for worldwide funding for semiconductor research and heterogeneous integration.

His call to action included a hardware paradigm shift to meet the ICT opportunities of tomorrow, as well as the need for a commitment to workforce development, broadening participation, and sustainability. "SRC is a trusted space where industry and academics can come together to collaborate," Younkin told the attendees.

If you missed this year's symposium, visit the [event website](#) to learn more about the Heterogeneous Integration Roadmap, see the list of speakers and topics, and even view videos from the 2021 symposium.

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NEWS AND UPDATES!

[Intel Outstanding Researchers - 2](#)

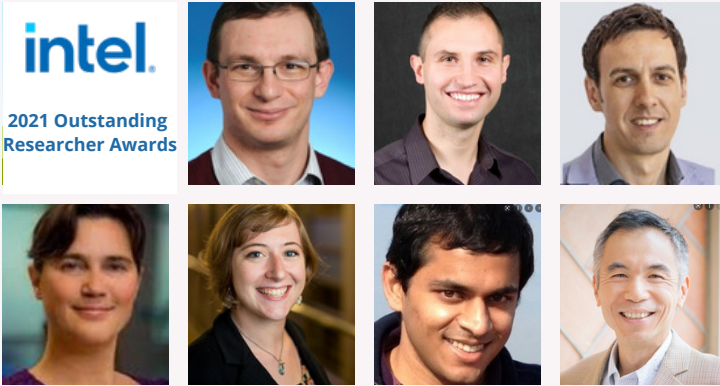
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SRC Researchers Granted Intel 2021 Outstanding Researcher Awards



Intel has announced its [2021 Outstanding Researcher Awards](#), and 7 out of 17 recipients are SRC researchers. These exceptional academics have been recognized for their important contributions to innovative technologies in fields such as field-programmable gate arrays and artificial intelligence.

"Intel's academic research partnerships are a core part of the company's strategy to explore critical research paths," said Aravind Dasu, co-director of Intel's Corporate Research Council. This year's Outstanding Researchers from SRC include:

- Onur Mutlu ([AIHW Task 2946.001](#))
- Umit Ogras ([AIHW Task 3012.001](#))
- Eric Pop ([JUMP ASCENT Task 2776.003](#) and [2776.012](#), [nCORE IMPACT Task 2966.011](#))
- Tajana Rosing ([JUMP CRISP Task 2780.023](#), [AIHW Task 2942.001](#) and [3021.001](#), [HWS Task 2997.001](#),)
- Justine Sherry, Vyas Sekar, and James C. Hoe ([JUMP CONIX Center](#))

"We are pleased to recognize the important contributions of these carefully selected researchers in our 2021 Outstanding Researcher Awards. We wish them each sincere congratulations," said Henning Braunisch, co-director of Intel's Corporate Research Council.

NAI Elevates SRC Researchers to Senior Membership

The National Academy of Inventors (NAI) has elected two SRC researchers to its [2022 class of Senior Members](#). [Yiran Chen](#), PhD, and [Eugene B. John](#), PhD, are recognized for their demonstration of "remarkable innovation producing technologies that have brought or aspire to bring real impact on the welfare of society," according to a [press release](#) from the University of Texas at San Antonio.



Dr. Chen is a professor in the Department of Electrical and Computer Engineering at Duke University. His SRC research is task 3104.001, GRC: Machine Learning for Cross-Level, Cross-Domain and Multi-Objective Optimizations, 3104.001.

A professor in the Klesse College of Engineering and Integrated Design's Department of Electrical and Computer Engineering at the University of Texas at San Antonio, Dr. John's SRC research is [task 3016.001](#), GRC: Machine Learning Workload Analysis and Characterization.

SPIE Fellows Include CRISP PI and Former SRC Scholars

Associate professor of biomedical engineering and medical physics, [Kevin Eliceiri](#) (University of Wisconsin), has been named one of 58 new SPIE fellows from around the world. SPIE is the leading international society for optics and photonics researchers. Eliceiri, a CRISP Center PI, develops imaging instrumentation and technology, including computational imaging techniques to study the cellular micro-environment.



Former SRC Research Scholars Nelson Felix (IBM) and Professor Uzodinma Okoroanyanwu (U.Mass-Amherst) were also elected as SPIE Fellows. Congratulations!



Xie wins IEEE SSCC Predoctoral Achievement Award

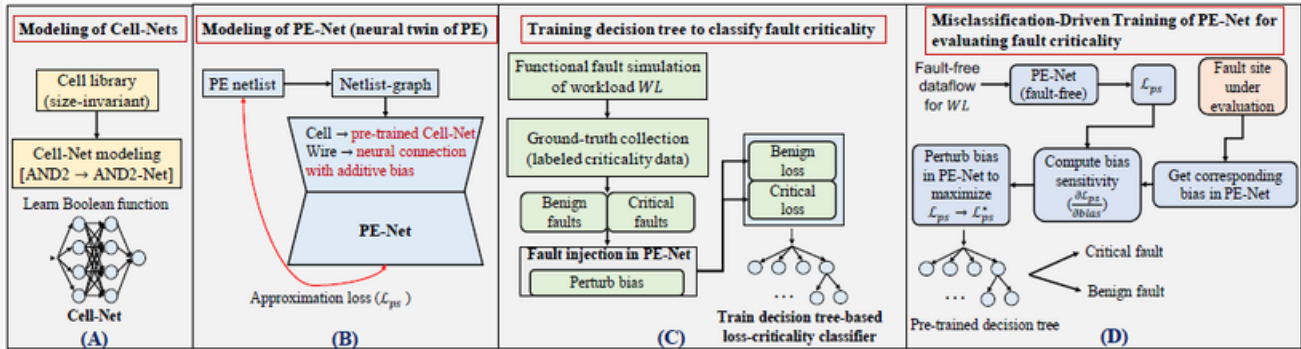
[Shanshan Xie](#), PhD candidate and advisee of SRC researcher Dr. Jaydeep Kulkarni ([LMD Task 2962.001](#)), was awarded the [2021-2022 IEEE SSCS Predoctoral Achievement Award](#). This recognition is given to promising graduate students in the area of solid-state circuits. Xie is a student at The University of Texas at Austin's Cockrell School of Engineering, and is a member of the Circuit Research Lab.

IEEE Names 2022 Fellows

The IEEE recently named their class of [2022 Fellows](#). The list includes former SRC scholars Kemal Aygun, R. Iris Bahar, Seth Bank, Luca Daniel, Puneet Gupta, and Timothy Sherwood. Current SRC Researchers named IEEE Fellows include Raja Ayyanar, GRC; James Buckwalter - UMP; Zhihong Chen - nCORE; Eric Pop - JUMP/nCORE/GRC; Arijit Raychowdhury - JUMP/GRC; and Huili Grace Xing - JUMP. Congratulations to these newly elevated fellows on this prestigious distinction.



Tech Transfer Series



In collaboration with IBM, Siemens EDA, and TI, [CADT researchers](#) Krishnendu Chakrabarty and Arjun Chaudhuri from Duke have filed a [patent](#) on “Efficient Fault-Criticality Analysis for AI Accelerators using a Neural Twin”. Testing of machine learning systems has made tremendous progress in manufacturing test, but the proliferation of domain-specific ML hardware poses new technical and cost challenges. We need to understand how manufacturing defects impact training and inferencing, and how yield can be increased through domain-specific defect screening. This work focuses on at-scale transferable domain adaptation-based framework to estimate criticality of internal nodes inside hardware macros (adder, etc.) without exhaustive fault simulations. The framework has been useful for architectural exploration using trainable machine learning to provide benefits in many applications, from servers to the edge, for efficient criticality analysis with very limited ground-truth.

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.

- How Do We Quantify the Application-Level Benefits of a New Technology? A Fundamental Question For Ascent - [SRC Pub ID P106273](#)
- Technologies for Neuromorphic Computing: Cross-Layer Interactions and Design Insights - [SRC Pub ID P105307](#)
- Advanced Gate Stack Design of Ferroelectric Transistor for Scaling towards 7nm FinFET Platform - [SRC Pub ID P103656](#)
- Voltage & Current Controlled Nanomagnetism for Memory and Logic - [SRC Pub ID P106264](#)
- Spin-Based Neuromimetic Computing: Deep Spiking Neural Systems - [SRC Pub ID P088793](#)