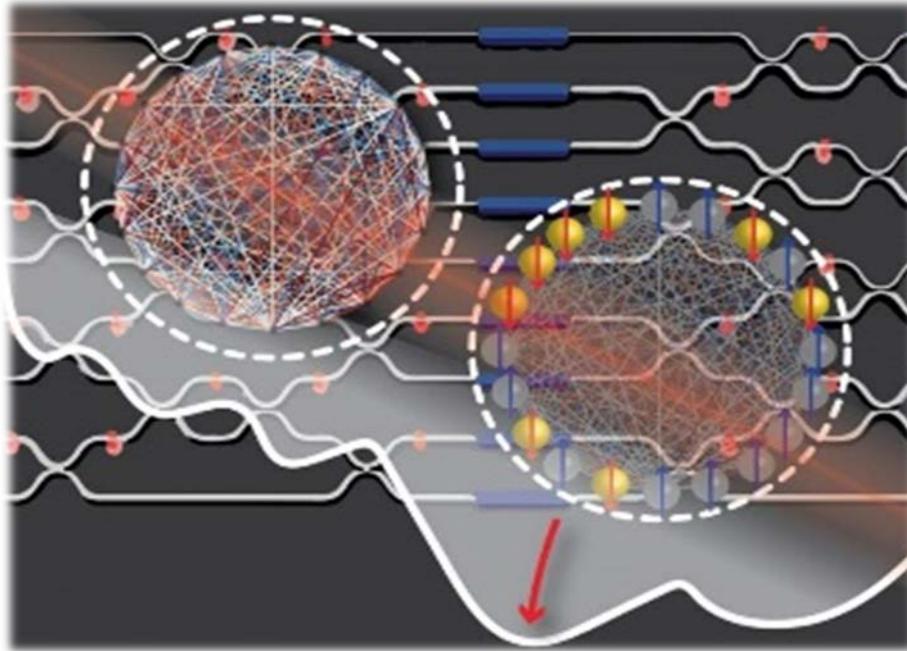




SRC funded MIT team develops algorithm dedicated to solving well-known NP-complete Ising problem with photonics hardware. [Read more](#) »



HyperDimensional (HD) computing rising from CRISP Center wins DARPA and NSF Awards



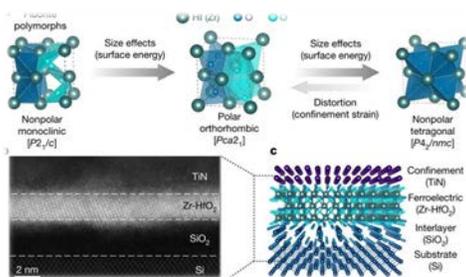
Based on her CRISP research efforts, Prof. Tajana Rosing and her collaborators at UCSD have been awarded a [\\$1M DARPA grant](#) for HyDREA (Hyperdimensional Computing: Robust, Efficient and Accurate). The 18-month HyDREA project will have to overcome a long list of technical challenges, most notably being the development of new ways to process data and handle large dimensionality without losing speed. The team will need to develop new coding and decoding strategies, fast HD algorithms, and efficient hardware. For this last point, the HyDREA team is collaborating with Northrop Grumman to evaluate HD computing on the company's stochastic computing chip. Prof. Rosing's team also won an [NSF award](#) for Brain-Inspired Hyperdimensional Computing for IoT Applications, based on a closely related school of thought.



NeuroSim v2: An end-to-end benchmarking framework for CiM accelerators for training

GaTech Prof. Shimeng Yu's group has released a new version of their increasingly popular DNN + NeuroSim framework. The new feature of this version (v2.0) is the support of on-chip training for compute-in-memory (CiM), with both algorithmic evaluation of non-ideal device effects and circuit-level modules for backpropagation having been added. Learn more about Shimeng's NeuroSim-related work in [JUMP](#) and [nCORE](#). NeuroSim v2.0 is on [GitHub](#) »

Researchers discover enhanced ferroelectricity in ultrathin ZR-HfO₂ Films



A team of Berkeley researchers led by ASCENT's Assistant Director, Prof. Sayeef Salahuddin has managed to grow ultra-thin ferroelectric material on silicon. The team's breakthrough demonstrates ferroelectric effects on a material just 1 nm thick. As a result, the material can efficiently power the smallest of devices with lower amounts of energy. "We are making computing devices that are getting smaller, smaller, and smaller," Salahuddin said. "With our ferroelectric material, you don't really need to worry about space.... It is a "fundamental breakthrough" in the field of ferroelectricity". [Learn more here](#) »



SRC PI receives Outstanding Faculty Mentor Award

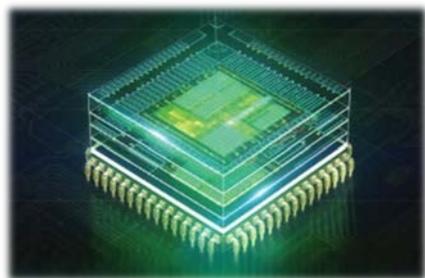
Prof. Amy Marconnet has been recognized by the College of Engineering at Purdue as an Outstanding Faculty Mentor. "Prof. Amy Marconnet is the embodiment of an expert researcher, excellent teacher and a supportive mentor. She is deeply invested in the overall professional development of her students, constantly helping them to hone and refine their skills, and encouraging them to step out of their comfort zone." [Read more](#) »

UIUC Professor Sarita Adve and team have released the ILLIXR augmented and virtual reality suite



The ADA team released ILLIXR (Illinois Extended Reality Suite) as the first open source benchmark suite for architecture and systems research and development on AR/VR. It contains several core state-of-the-art components for a generic XR pipeline, including: Simultaneous localization and mapping, Scene reconstruction, Ambisonic encoding, Ambisonic manipulation and binauralization, Lens distortion correction, Chromatic aberration correction, Time warp, and Computational holography for adaptive multi-focal displays. [Learn more](#) » All components are also available at <https://illixr.github.io/>.

A density metric for semiconductor technology



Since its inception, the semiconductor industry has used a physical dimension (the minimum gate length of a transistor) as a means to gauge continuous technology advancement. This metric is all but obsolete today. As a replacement, TSMC leadership and researchers from the ASCENT Center provide an IEEE point of view wherein they propose a density metric that aims to capture how advances in semiconductor device technologies enable system-level benefits. Learn more about the [perspective](#) and related [ASCENT research](#).

ComSenTer PI Rebeiz wins 3rd 2020 IEEE Microwave Prize



Professor Gabriel Rebeiz won the IEEE 2020 Microwave Prize for the most significant contribution in the IEEE Transaction for Microwave Theory and Techniques for his work on 5G phased-arrays. Prof. Rebeiz and his group also won this award in 2000 for work on RF MEMS and again in 2014 for work on RFICs with built-in-self-test capabilities. No one has ever won the Microwave Prize three times in the history of IEEE. [Learn more](#) »



SRC graduate student wins Towner Price for UM CompSci & Engineering

JUMP PhD candidate, Andrew McCrabb, a student in Michigan's ADA Center under the direction of Prof. Valeria Bertacco, has been recognized with a Towner Prize as the outstanding graduate student in Computer Science and Engineering. Andrew is developing and implementing hardware designs to accelerate graph-based applications, including those that power large social media and financial networks. There is an excellent video testimonial of Andrew [here](#). Andrew's SRC student profile and resume are [here](#). He plans to graduate in May of 2022.



SRC Professor wins 2020 NSF CAREER Award

Assistant Professor Tuba Yavuz has been awarded a 2020 NSF CAREER Award for her project, "Towards a Secure and Reliable Internet of Things through Automated Model Extraction and Analysis." The project will additionally help broaden participation of women and other underrepresented groups in IoT security, formal methods, and software engineering research. [Read more](#) »

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