

Seeing Beyond Limits

The University at Albany, IEEE USA, the IEEE Sensors Council, the IEEE Signal Processing Society, and the IEEE Synthetic Aperture Standards Committee invite you to Albany, New York for the 3rd annual Conference on Computational Imaging Using Synthetic Apertures (CISA). CISA is a unique gathering of researchers and engineers interested in exploring the connections between remote sensing applications and computational imaging (CI). CI refers to the use of novel theory, data acquisition methods, and computational algorithms that exploit the forward imaging model to enable image reconstruction performance better than what is conventionally capable by a sensor/hardware system. Synthetic apertures (SA) are often leveraged in CI systems to sample propagating wavefields or environmental parameters through the motion of an antenna, transducer, or optical sensor. At the foundation of CI and synthetic aperture formation are the physics-based models that are exploited in computational procedures which provide accurate and robust estimates in the presence of measurement noise, system level nonlinearities, or limited & irregular sampling patterns. The physical models and computational approaches for synthetic aperture imaging have become ubiquitous in a wide range of applications, including synthetic aperture radar (SAR), sonar (SAS), SA radiometry, and Fourier ptychography, as well as techniques that relate measurements to k-space samples, such as computed tomography, radio astronomy, seismology, MRI, and ultrasound. Some specific topics are suggested below.

SAR: Automotive, mmWave, and THz SAR, Polarimetric, Interferometric, and Tomographic SAR, ISAR, 3-D imaging, Image reconstruction methods, Novel front-end sensors
Radar: Weather radar, Phased array radar
Sonar: Micro-navigation, Bathymetry, Wideband regimes
Optics: Fourier ptychography and SA microscopy, SA holography, Coded diffraction imaging, Coded aperture imaging, SAs leveraging motion, LED or VCSEL array imaging
Seismology: Wave migration and localization techniques
K-space modeling and reconstruction techniques: Black-hole imaging, Radio astronomy, Low magnetic field MRI

Prospective authors should visit <http://cisa-conference.org/> to submit manuscripts. The 2026 CISA conference will be an in-person event and authors must present their papers live at the University at Albany to be published in IEEEExplore. For additional questions, please send an email to info@cisa-conference.org to contact the co-chairs; Bariscan Yonel (University at Albany) and Miguel Heredia Conde (University of Wuppertal).

Special session and tutorial proposals due: January 30
Initial 2-page summary submission due: March 24
Climate change submissions due: March 24
Paper acceptance notification: April 6
Advance Registration Deadline: May 8
Camera-ready 4+1 page paper due: May 1

Synthetic aperture radiometry: Earth observation, Environmental monitoring, Planetary imaging

Super-resolution techniques: Methods that exploit the physics of sensing

Time-of-flight imaging: SAs via multi-aperture, multi-camera setups, 3D imaging, Optical and sub-optical wavelengths

GNSS reflectometry: Soil moisture, Vegetation, Sea ice

Model-based deep reconstruction: Plug-and-play methods, Diffusion models for image priors, Physics-informed neural networks, Doppler radiance fields

Point cloud processing: SA LiDAR (SAL), 4D mmWave SAR