

Advances in imaging and displays have been the source of numerous scientific breakthroughs, as evidenced from the more than ten Nobel Prizes that have been awarded to various inventions and discoveries in the imaging sciences. Stunning statistics include more than a billion cameras being sold every year, and more than a trillion photos taken each year. This revolution in consumer photography is un-paralleled and is a direct result of a decade of advance in semiconductor fabrication technologies that have made image sensors less expensive and at a higher resolution every passing year. Parallel to this revolution, we have also witnessed a computing revolution with ever-more sophisticated algorithms, more computing and storage horsepower available at the ready, and growing possibilities with mobile devices and cloud computing platforms. Computational photography and displays is a field at the confluence of these two fast-growing and ever-expanding disciplines. The area of Computational Photography seeks to create new imaging, and photographic functionalities and experiences that go beyond what is possible with traditional cameras and image processing tools. The key insight is that co-design of image sensor systems and signal processing algorithms to handle the sensor data provides several new degrees of design freedom, enabling imaging systems to break traditional barriers in imaging and displays.

This special issue invites well thought-out tutorial-style surveys and overviews of recent research and development in computational photography and displays, covering their myriad of applications including consumer devices, mobile imaging, surveillance, security, automotive navigation and scientific imaging. As such, this special issue aims to cover a wide variety of aspects with a focus of the enabling and synergistic roles that signal processing plays. The scope of this special issue is interdisciplinary and seeks collaborative contributions from academia and industrial experts in the areas of image sensors, photonics, information theory, signal processing, computer vision, and machine learning/data mining.

Topics of Interest include (but are not limited to):

- Computational sensors, cameras and illumination
- Computational optics (such as wavefront coding and digital holography)
- Computational photography on drones and robots
- Computational and 3D displays
- Compressive sensing and imaging
- High-performance imaging (such as high-speed, hyper-spectral, high-dynamic range, confocal, etc.)
- Multiple images and camera arrays
- Advanced image processing
- Mobile and Embedded imaging
- Novel applications

White papers are required, and full articles are invited based on the review of white papers. Articles submitted to this issue must be of tutorial and overview/survey nature and in accessible style to a broad audience, and contain significant relevance to the signal processing and its use in computational photography and displays (authors of original research articles should submit instead to the new IEEE Transactions on Computational Imaging). Submissions will be reviewed according to the IEEE Signal Processing Magazine guidelines, and should not have been published or under review elsewhere. Submissions should be made online at <http://mc.manuscriptcentral.com/sps-ieee>. For guidelines and information on paper submissions, visit <http://www.signalprocessingsociety.org/publications/periodicals/spm/>.

Important Dates: Expected publication date for the special issue is **September 2016**.

White paper due	August 14, 2015 August 31, 2015 (extended)
Notification of white paper review	September 14, 2015
Submission of invited full-articles	November 1, 2015

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