

Special Issue on  
**Optical Techniques for Measuring Object Shape and Appearance**

# CALL FOR PAPERS

Physical objects have optical properties such as transmittance, reflectivity, scattering, color, and luminosity, as well as the geometric shapes, which are often effectively defined in an optical sense. In this regard, a range of object shapes and appearances can be acquired by optical techniques. Optical measurement techniques are mostly nondestructive, precise, fast, and easily automated, and as a result they are frequently used in science and engineering where object shape and appearance are often effectively measured by utilizing distinct views, light patterns, interferometry, polarization (e.g., polarization by reflection), lasers, and invisible lights.

In the real world, object shape and appearance can be dynamic and complicated. Temperature and pressure may affect object shape and appearance, and subsurface scattering may be crucial for some objects. Optical measurement techniques have been increasingly used together with computer vision and machine learning techniques recently; computer vision techniques have been successfully used for estimating 3D shape and reflective properties of objects, and machine learning techniques increase measurement accuracies and effectively save a large portion of human labor. The measurement of object shape and appearance has many applications such as inspection, visualization, graphics, and interactive media.

This special issue welcomes original research and review articles that highlight recent advances in optical techniques for measuring object shape and appearance and aims to convey the state-of-the-art of research and development in related areas.

Potential topics include but are not limited to the following:

- ▶ Stereo vision, multiple view, and geometric calibration
- ▶ Structured light and phase shifting for acquisition of shape and appearance
- ▶ Interferometry and holography for shape and appearance measurement
- ▶ Scene reflectance measurement
- ▶ Estimation of and invariance to illumination and shadows
- ▶ Separation of reflection components
- ▶ Measuring and modeling anisotropic reflection
- ▶ Polarization, lasers, and invisible lights for measuring shape and appearance
- ▶ Machine learning methods for obtaining shape and appearance
- ▶ Shape and appearance inspection
- ▶ Visualization, graphics, and interactive techniques utilizing shape and appearance

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/ijo/otmosp/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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