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IEEE Transactions on Image Processing
Special Issue on 3D Video Representation, Compression and Rendering

A new set of 3D data formats and associated compression technology are emerging with the aim to achieve higher compression of 3D and multiview video content, and also facilitate the generation of multiview output, e.g., as needed for multiview auto-stereoscopic displays. This special issue will target the most recent technical developments in this area including novel representations of natural 3D scenes as well as corresponding compression and rendering techniques. Applications of interest include 3D broadcast, mobile delivery, as well as interactive and immersive applications. Since 3D quality assessment is critical to the development and evaluation of new 3D coding and rendering technologies, papers that address quality assessment of 3D video are also sought. This special issue also targets novel coding architectures and techniques that address interoperability and compatibility requirements of different 3D services, as well as emerging standards in this area. The primary objective of this special issue is to provide the image processing and video coding community with a collection of papers that present the most recent advances in 3D video representation, coding and rendering technology.

We invited prospective authors to submit original and unpublished research to this special issue. All submissions are expected to exhibit high novelty and demonstrate the merits of the proposed approach in terms of compression efficiency, rendering quality and/or quality assessment. The topics of interest include, but are not limited to:

- Novel representations of natural 3D scenes
- Compression techniques for stereo and multiview video content, supplemental data such as depth, as well as joint coding techniques that exploit inter-component correlations
- 3D warping and rendering techniques, including depth-based image rendering and media retargeting
- Encoder optimization techniques including rate-distortion modeling, optimization and bit allocation
- 3D quality assessment metrics and methodology, as well as evaluation studies, that relate to assessment of impairments caused by compression and rendering
- Novel coding architectures, interoperable systems and standardization

Submission Procedure: Manuscripts should be submitted by the below deadline using the Manuscript Central system at http://mc.manuscriptcentral.com/tip-ieee. Further information on paper preparation and submission can be found at http://www.signalprocessingsociety.org/publiations/periodicals/image-processing/. Manuscripts will be peer reviewed according to the standard IEEE review process.

Reproducible Research: It is encouraged that papers report results based on publicly available test material and that software be made available for review and experimental validation.

Schedule

Submissions due: **1 October 2012**
First reviews completed: **15 December 2012**
Revised manuscripts due: **1 February 2013**

Second reviews completed: **1 April 2013**
Final manuscript due: **15 April 2013**
Publication date: **July 2013**

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