



Call for Papers

Signal Processing : Image Communication

Special Issue on Visual Information Processing for Underwater Images and Videos: Theories, Algorithms, and Applications

Underwater images and videos play significant roles in developing, exploring, and protecting the underwater world. However, there are many challenges that need to be addressed due to the complex and uncontrollable underwater imaging conditions. Underwater images and videos taken by sensors always suffer from the effects of quality degradation due to light selective absorption and scattering as well as the use of artificial light. The degraded underwater data have low contrast and brightness, color deviations, blurry details, nonuniform bright speck, etc., which not only affects the experience of human perception but also challenges the computer vision algorithms. Despite the prolific work in underwater visual information processing, the related theories are antique and current algorithms remain largely unsatisfactory. Further, it is difficult to achieve decent performance by directly transplanting the computer vision applications (e.g., object detection, recognition, segmentation, etc.) for conventional images and videos into underwater ones. Besides, large-scale real-world underwater benchmark datasets and specialized underwater image and video quality assessment metrics are lacking, which keep this research area at a standstill. Thus, there is a pressing demand for novel theories and algorithms that can effectively deal with the problems of underwater image and video quality degradation, accurately evaluate underwater image and video quality and efficiently compress underwater images and videos, and also call for the various applications of computer vision algorithms in underwater images and videos.

This special issue will feature original research papers related to the theories and algorithms for underwater visual information processing together with widespread applications. The main topics of interest are, but are not limited to:

- Underwater optical imaging physical model and quality degradation theory.
- Underwater image and video enhancement and restoration algorithms, including traditional methods, physical model-based methods, and deep learning-based methods.
- Underwater image and video quality assessment methods, including full-reference assessment metrics, non-reference assessment metrics, etc.
- Underwater image and video compression, coding, representation, transformation, etc.
- Underwater image and video applications: aquatic robotics visions, underwater machine visions, object detection, object recognition, segmentation, tracking, 3D modeling, etc.
- New benchmark datasets related to the aforementioned topics.

Important Dates:

Manuscript submission deadline: May 1, 2020

First reviews completed deadline: August 1, 2020

Revised manuscripts deadline: October 1, 2020

Final acceptance deadline: November 1, 2020

Expected publication date: December 1, 2020

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Submission Guidelines:

Prospective authors are invited to submit high-quality research papers that have not been submitted, accepted or published. The manuscript should be prepared according to the journal's author guidelines and submitted through the online system. All submitted manuscripts will be reviewed and evaluated based on the relevance, originality, novelty, and presentation. Please find the full detailed information at

<https://www.journals.elsevier.com/signal-processing-image-communication>

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