

**ICPR Workshop on
Computer Vision for Analysis of Underwater Imagery**
4 December 2016
Cancun, Mexico

The 2nd Workshop on Computer Vision for the Analysis of Underwater Imagery (CVAUI 2016) was held in conjunction with the International Conference on Pattern Recognition (ICPR) on 4 December 2016 in Cancun, Mexico. The workshop webpage can be visited at: <http://cvaui2016.oceannetworks.ca>

Monitoring marine and freshwater ecosystems is of critical importance in developing a better understanding of their complexity, including the effects of climate change and other anthropogenic influences. The collection of underwater video and imagery, whether from stationary or moving platforms, provides a non-invasive means of observing submarine ecosystems in situ, including the behaviour of organisms. Oceanographic data acquisition has been greatly facilitated by the establishment of cabled ocean observatories, whose co-located sensors support interdisciplinary studies and real-time observations. Scheduled recordings of underwater video data and static images are gathered with Internet-connected fixed and PTZ cameras, which observe a variety of biological processes. These cabled ocean observatories, such those operated by Ocean Networks Canada (<http://oceannetworks.ca>), offer a 24/7 presence, resulting in unprecedented volumes of visual data and a “big data” problem for automated analysis. Due to the properties of the environment itself, the analysis of underwater imagery imposes unique challenges which need to be tackled by the computer vision community in collaboration with biologists and ocean scientists.

This workshop was well attended (30 participants) and provided a forum for researchers to share and discuss new methods and applications for underwater image analysis. We received 14 submissions, out of which 10 were accepted based on a thorough peer review process. Many of the submitted papers were of excellent quality, so the high acceptance rate reflects a self-selection process performed by the authors of the submissions. We thank the members of Program Committee for lending their time and expertise to ensure the high quality of the accepted workshop contributions. The proceedings have been submitted for indexing and publication to IEEE Xplore.

This year’s technical program covered a variety of topics, including applications to fisheries research, species classification, and scene reconstruction, among others. We were also pleased to offer three keynote talks given by prominent researchers from ocean science, industry and computer science perspectives. Dr. Henry Ruhl, National Oceanography Centre, Southampton, UK, spoke on “*Advances in Computer Vision and Pattern Recognition for Research in Biological Oceanography.*” Dr. Anthony Hoogs, Kitware, Clifton Park, NY, USA, talked about the “*Video and Imagery Analytics for the Marine Environment (VIAME): an Open Source Framework for Underwater Image Processing.*” Finally, Dr. Yogesh (Yogi) Girdhar, Woods Hole Oceanographic Institution (WHOI), Woods Hole, MA, USA, entertained workshop participants with his talk entitled, “*Real-time Unsupervised Scene Understanding for Building Curious Underwater Exploration Robots.*”

We hope that all workshop attendees will be inspired in their research by participating in CVAUI 2016, and that this workshop will foster many fruitful conversations and open new areas for collaborative interdisciplinary research in underwater image analysis.

Alexandra Branzan Albu and Maia Hoeberechts
CVAUI 2016 Workshop Chairs