
Visual computing technologies have traditionally been developed for conventional setups where air is the surrounding medium for the user, the display, and/or the camera. However, given mankind's increasingly need to rely on the oceans to solve the problems of future generations (such as offshore oil and gas, renewable energies, and marine mineral resources), there is a growing need for mixed-reality applications for use in water. This article highlights the various research challenges when changing the medium from air to water, introduces the concept of underwater mixed environments, and presents recent developments in underwater visual computing applications.