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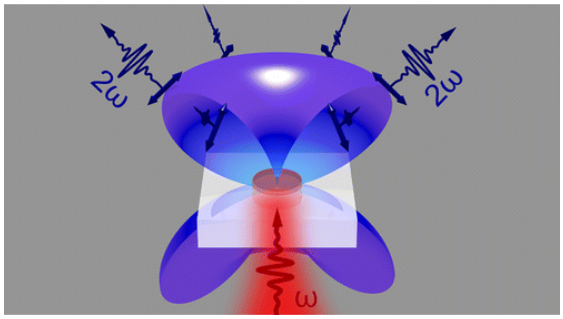
# Contents

## Review





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## Original Article



Nowadays, more and more autonomous underwater vehicles (AUVs) and unmanned underwater vehicles (UUVs) are put into applications. The images collected by the equipments have important research value for the development of the ocean. Due to the special optical properties of the marine environment, the acquired video is prone to quality degradation such as color shift, edge blur and contrast reduction. Therefore, underwater image enhancement and restoration have received extensive attention and become a research hotspot. This paper proposes an underwater image enhancement algorithm based on red channel weighted compensation and gamma correction model. A red channel weighted compensation model is established by analyzing the scattering and attenuation characteristics of different wavelengths. Since the attenuation of green light is minimal, the green channel is used as a guided image to refine the edge information of red channel. Although the color of the compensated image is corrected, the image still retains low contrast. Then we use a method based on grayscale stretching to improve the visual effect of the image. Compared with some commonly used algorithm, it also shows certain advantages. The experimental results show that the restored images are natural in color and the contrast is improved by about 2 times. The algorithm can process video with 1280×810 resolutions at 30 frames per second after CUDA acceleration.

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