

The synthetic haze simulation based on visibility range for dehazing method in single image

ABSTRACT

Outdoor images are typically degraded by light scattering and absorption from aerosols, such as dust, mist, and smoke in the atmosphere. Because of poor visibility, dimmed brightness, low contrast, and colour distortion, these phenomena affect the captured image. Therefore, it is a critical challenge to recover pictures taken in a haze condition, which is called image dehazing. The primary aim of image dehazing is to improve details on visibility, edge, and texture and retain the image structure and colours without data loss. There are no proven benchmarks for their assessment, despite the many algorithms suggested for single image dehazing. In previous publications, arbitrary comparisons were mostly focused on a small number of images, with different publications using different sets of images. This paper presents a new dataset that includes image pairs of hazy and corresponding outdoor images that are haze-free (ground-truth). Most of the current hazy database presented in a single image simulated synthetic haze indicated complicated calculation of the depth map. Unlike most of the current dehazing databases, a synthetic haze, which is determined by the atmospheric scattering algorithm derived from the actual distance from the camera to the scene object, has simulated hazy images. In the separate range, the synthetic haze derivation referred from the meteorological range explicitly based on haze conditions. On a clear day as referred to as a low Air Pollutant Index, this experiment simulated synthetic haze in the Malaysian outdoor scene. The haze simulation illustrates how this approach can lead to better outcomes in the measurement of image quality than the current state-of-the-art dehazing method.