

Major Project: Team 1

Title: Image Dehazing using Computer Vision and Image Processing

ABSTRACT

Images affected by haze often face challenges such as reduced visibility and loss of details, impacting their overall quality. While conventional dehazing methods, both manually crafted and data-driven, have been thoroughly explored, their performance often falls short. To address these limitations, we present the patch-map-based hybrid learning DehazeNet, which seamlessly combines the strengths of established methodologies for improved haze removal. By carefully examining the drawbacks of the dark channel prior (DCP), DehazeNet introduces a new "patch map" feature. This dynamic tool enables the network to adaptively select patch sizes, effectively resolving issues like color distortion and difficulty recovering details in white scenes. Additionally, DehazeNet incorporates a patch-map-based DCP within its core architecture. This module undergoes joint training with other essential components, collectively refining the haze removal process. Extensive evaluations demonstrate that DehazeNet outperforms the state-of-the-art, delivering visually impressive results with enhanced clarity and detail, even in heavily hazy environments.

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