

DERAINIZER
FOR UNPAIRED SINGLE IMAGE DE-RAINING

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Abstract

Rain streaks are considered as a disturbance or a noise which cause performance or accuracy limitations in many computer vision systems. This obstructing rain streak problem is addressed within the domain of “De-raining”. De-raining is the process of removing rain streaks from media such as photos or videos. Two main sub-categories of de-raining are video de-raining and single image de-raining. This work is based on single image de-raining. Many other single image de-raining works have taken place using both traditional and deep learning approaches. A critical analysis of novel, credible, and best performing single image de-raining systems was done to identify a research gap in the domain. Identified research gap is an unpaired training gap which causes a performance limitation within current image de-raining systems due to the unavailability of natural paired rain image data. The project DERAINIZER is a novel single image de-raining framework which addresses this research gap by applying image-to-image translation techniques. It enables future researchers of the domain to employ unpaired training data to train their models. This work is evaluated by benchmarking achieved results for popular datasets, against existing systems in the domain.

Keywords: Single Image De-raining; Computer Vision; Image Generative Models; Image-to-Image Translation; Generative Adversarial Networks; Autoencoders.