Progressive Generative Adversarial Networks for Medical Image Super Resolution

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Abstract

They proposed an image super-resolution method using progressive generative adversarial networks (P-GANs) that can take as input a low-resolution image and generate a high-resolution image of desired scaling factor. The super-resolved images can be used for more accurate detection of landmarks and pathologies. Their primary contribution is in proposing a multi stage model where the output image quality of one stage is progressively improved in the next stage by using a triplet loss function.

Introduction

Retinal fundus image analysis is essential for diagnosis of retinal conditions such as glaucoma and diabetic retinopathy.

However there are many pathologies which cover a very small area in the fundus images or are not clearly visible Smaller branches of the vasculature are difficult to segment in normal fundus images They proposed a image super-resolution algorithm using progressive generative adversarial networks (P-GANs) that takes as input a low-resolution image patch and outputs a high-resolution image to facilitate more accurate diagnosis.

Survey

Their main focus is only on the retinal fundus and to generate the high-resolution image from the low resolution to high resolution