Neural Network Application in Hyperspectral and Multilevel Diffractive Lens Imaging

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Abstract

Traditional imaging systems utilize additional optical elements in order generate hyperspectral images or correct optical aberrations. However, with increasing computational power, it is becoming advantageous to simplify our imaging systems and instead rely on postprocessing of the image. Neural networks have been particularly effective in solving such problems since they can approximate any function when given enough data. In this paper, we analyze two neural networks, one of which is novel, on their ability to generate hyperspectral images from image sensor data, and we propose various modifications to an existing neural network pipeline for processing MDL images.