GeoPose3K: Mountain Landscape Dataset for Camera Pose Estimation in Outdoor Environments

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GeoPose3K: Mountain Landscape Dataset for Camera Pose Estimation in Outdoor Environments

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Abstract

We introduce a new dataset called *GeoPose3K* which contains over three thousand precise camera poses of mountain landscape images. In addition to camera location and orientation, we provide data for the training and evaluation of computer vision methods and applications in the context of outdoor scenes; synthetic depth maps, normal maps, illumination simulation and semantic labels. In order to illustrate properties of the dataset, we compare results achieved by state-of-the-art visual geo-localization method on *GeoPose3K* with results achieved on an existing dataset for visual geo-localization. So as to foster research of computer vision algorithms for outdoor environments, several novel future use-cases of our new *GeoPose3K* dataset are proposed.

Keywords: camera pose estimation, visual geo-localization, camera orientation estimation, image-to-model registration, digital terrain models, semantic segmentation

1. Introduction

Camera location and orientation are key attributes of every photograph. Many non-conventional applications can be developed, with a known location and the orientation of a camera. These include computational photography and

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