

Graduate School of Science and Technology Master's Thesis Abstract

Laboratory name (Supervisor)	Interactive Media Design (Hirokazu Kato (Professor))		
Student ID	1911412	Submission date	2022 / 1 / 21
Name	FANG YU		
Thesis title	Improving Self-supervised Monocular Depth Estimation for Self-driving using Discrete Disparity		
Abstract			
<p>Depth estimation from a single image has become a promising alternative to traditional approaches leveraging multiple view geometry. In the self-driving field, deep learning based methods achieved outstanding results at the expensive cost of obtaining precise ground truth depth beforehand. However, it is not always feasible to acquire such large amounts of accurate data in real situations. Self-supervised approaches trained on monocular videos mitigate the difficulty of data annotations while the accuracy can still be improved. This paper enables to enhance monocular depth estimation by utilizing discrete disparity in existing self-supervised networks. For the pedestrian class, a simple geometric constraint is introduced to further improve the depth prediction results. Experimental results are given on the KITTI dataset to verify the effectiveness of our model. We show that the proposed method allows our results to be on a par with other current state-of-the-art trained in a self-supervised manner.</p>			