CS512 - Project Proposal

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Topic:

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Project topic: Dynamic scenes synthesis

Paper name: Novel View Synthesis of Dynamic Scenes with Globally Coherent Depths from a Monocular Camera

Publication details: Yoon, Jae Shin and Kim, Kihwan and Gallo, Orazio and Park, Hyun Soo and Kautz, Jan, June, 2020, The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)

Problem statement:

In this project the problem of synthesizing dynamic scenes using static images will be addressed. This is a challenge because of different scene qualities, different point of views and different depths in each static image.

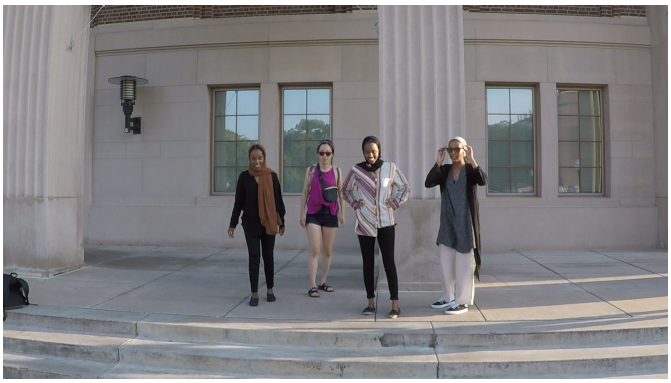
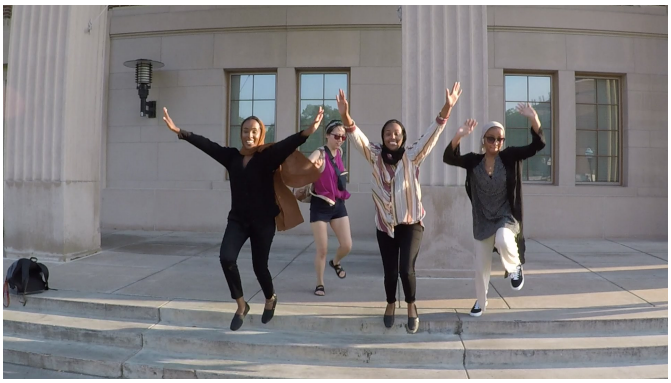
Approach:

In this project, depth from single view will be combined with depth from dynamic view. Using the single view, each pixel will be assigned with a depth and dynamic view will be applied on this single view depth pixels. The refining and scaling of dynamic view depth is a learning process and all of these tasks will be implemented using a self-supervised deep fusion network.

Data:

This dataset is proposed for the task of novel view synthesis and depth estimation from

dynamic scenes. From the synchronized 12 multiple cameras, we collect the ground-truth of view synthesis and depths from dynamic scenes. We also introduce the dynamic scene images captured from a monocular camera for testing purposes:

There are 9 different scenes recorded with this method for training the network and there are 4 datasets without ground truth for testing the network.

References:

Websites: github, stackoverflow, python documentation.
Softwares and packages: python packages such as OpenCV, Pandas, Matplotlib and keras.

Team members responsibilities:

There are no other students in this group, Mohamadreza Asherloo has all the responsibilities to take care of the project.