Efficiency of 2D-3D mapping

Before beginning internship

- https://drive.google.com/drive/folders/13CfHG-XQEhSrN8ppEBCr2f8unJTeyTli?usp=sharing

- Sign the undertaking and place it in same drive
  - <Name>-undertaking.doc

- Inform the university coordinator/mentor
- Obtain CTSoc Student membership

About the Project

- Algorithms are available to convert 2D images to 3D mesh
  - How efficient are these algorithms in generating realistic 3D mesh ?
- Tasks (3 month)
  - Literature Survey – 1 week
    - Outcome – Flowchart of how 2D to 3D conversion works. Create colab, github accounts to store source code. Understanding of .OBJ 3D model format
  - Setup Pixel2Mesh Colab Pixel2Mesh - Colaboratory (google.com) and Blender - 2 weeks
    - Outcome – Colab code run successfully. Blender installed.
  - Generate 3D Meshes for atleast 20 images – 2 weeks
    - Outcome – Store .OBJ format 3D meshes for 20 images, running the Colab
  - Load and Render 3D Meshes with front pose to 2D using Blender – 2 weeks
    - Outcome – 2D bitmaps of rendered models (read this link - https://docs.blender.org/manual/en/2.79/editors/info/screen_capture.html)
  - Come up with metrics - Score difference between original and generated 2D – 2 weeks
    - Outcome – 2 metrics that indicate low/high difference between original and generated 2D
  - Documentation – 1 week

Requirements

- Hardware
  - Computer with network connection
- Software
  - Chrome Browser for Colab
  - Blender for local installation (https://www.blender.org/download/)
- Requirements for Students
  - Interest in Computer Graphics
  - Knowledge of Python, basic image processing
  - Knowledge of Deep learning frameworks and CUDA

Related

- Google Colab
- https://github.com/prabindh/ctsoc-2d3d – Request to add
- https://www.smoothie-3d.com/site/page_index.php
- http://selva3d.com/
- https://docs.blender.org/manual/en/2.79/editors/info/screen_capture.html