Tour Into the Picture

Computer Vision Challenge SoSe22 - Group 04

Introduction

To provide a sense of dynamism to a planar, static painting, or photograph, a picture viewing tool was developed by our group, using the TIP method (Tour Into the Picture). A manipulatable, three-dimensional scene is constructed by the tool via a GUI (Graphical User Interface) in a combination of two - dimensional picture information with the user's selections. Auto-generated animation and screenshots are also realized.

Team

- Siyao Wang
- Chi Zhang
- Wenxin Tang
- Xuedong Zhang
- Zhengxuan Yuan

References

Modeling Foreground Objects

- **Judge Attached Background**
- **Calculate 3D Vertexes**
- **Perspective Transform**
- **Construct 3D Foreground**

Image Segmentation

Foreground   **Background**

Modeling the Background

Vertex labels: 9, 10, 11, 12, 7, 8, 5, 1, 2, 4, 6, 3

- **Spidery Mesh**
- **Calculate 12 2D-Vertexes of Background**
- **Extract 5 Regions**
- **Fill the Missing Parts**

- **Perspective Transform**
- **Estimate 3D Vertexes**
- **Construct the 3D Background**

ceiling
leftwall | rearwall | rightwall
floor

GUI

- **Image Processing**
- **Image Selection**
- **Camera Setup**
- **Animation**