

Study on Foreground Segmentation Methods for a 4D Studio

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A 4D reconstruction studio is an intelligent environment that enables 3D modelling of moving actors and deformable objects. The visual quality of the final 3D model, in terms of both geometry and texture, is greatly influenced by the precision and accuracy of the segmented foreground object. This paper extends our previous work on the image segmentation methods developed for the 4D studio at MTA SZTAKI, Budapest, Hungary. The studio uses a three-step approach for extracting the foreground silhouette: (i) background subtraction using spherical coordinates, (ii) foreground post-processing using a colour filtering approach based on the background colour, (iii) detection and removal of casted shadows. We give an overview of these techniques and perform a comparative evaluation in terms of both quantitative measures and qualitative analysis. We discuss our results in various imaging conditions, such as illumination variations.

References

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