Kinect based 3D human face reconstruction for MPEG-4 based animation*

Ákos Tóth^a, Richard Zsolt Buda^a, Gábor Boldizsár^a, Roland Kunkli^a

^aUniversity of Debrecen, Faculty of Informatics, Debrecen, Hungary aky992@gmail.com,ricseee@yahoo.com,boldizsar_gabor@yahoo.com, kunkli.roland@inf.unideb.hu

Abstract

MPEG-4 is a well-known standard, we are able to create model-independent animation of virtual faces which support it. Several photo or video based methods exist [1, 2], with which a textured mesh of a real human head or face can be generated using multiple-view reconstruction techniques.

But nowadays we can use Microsoft's Kinect sensor for 3D reconstruction problems too [3], and the results can be much more realistic than the previous mentioned ones. In this paper we show the way how can we use this sensor for 3D reconstruction of a human's head to get a textured mesh which can be used for MPEG-4 compatible facial animations.

Keywords: MPEG-4, Microsoft Kinect sensor, face reconstruction, mesh MSC: 68U05

References

- LEE, W.-S., ESCHER, M., SANNIER, G., MAGNENAT-THALMANN, N., MPEG-4 Compatible Faces from Orthogonal Photos, Proceedings Computer Animation 1999, (1999), 186-194.
- [2] ZHISLINA, V. G., IVANOV, D. V., KURIAKIN, V. F., LEMPITSKII, V. S., MARTI-NOVA, E. M., RODYUSHKIN, K. V., FIRSOVA, T. V., KHROPOV, A. A., SHOKUROV, A. V., Creating and Animating Personalized Head Models from Digital Photographs and Video, Programming and Computer Software, Vol. 30 (2004), 242–257.
- [3] IZADI, S., KIM, D., HILLIGES, O., MOLYNEAUX, D., NEWCOMBE, R., KOHLI, P., SHOTTON, J., HODGES, S., FREEMAN, D., DAVISON, A., FITZGIBBON A., Kinect-Fusion: Real-time 3D Reconstruction and Interaction Using a Moving Depth Camera, In: Proceedings of UIST '11, (2011), 559-568.

^{*}This research was supported by the TÁMOP-4.2.2.C-11/1/KONV-2012-0001 project. The project has been supported by the European Union, co-financed by the European Social Fund.