TU TECHNISCHE UNIVERSITÄT WIEN
Institut für Computergraphik und Algorithmen
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virtual reality und visualisierung
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OESTERREICHISCHE COMPUTER GESELLSCHAFT
AUSTRIAN COMPUTER SOCIETY

laden gemeinsam zum

GASTVORTRAG

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"Perceptual Display: Towards Reducing Gaps Between Real World and Displayed Scenes"

Abstract:

The human visual system (HVS) has its own limitations (e.g., the quality of eye optics, the luminance range that can be simultaneously perceived, and so on), which to certain extent reduce the requirements imposed on display devices. Still a significant deficit of reproducible contrast, brightness, spatial pixel resolution, and depth ranges can be observed, which fall short with respect to the HVS capabilities. Moreover, unfortunate interactions between technological and biological aspects create new problems, which are unknown for real-world observation conditions.

In this talk, we are aiming at the exploitation of perceptual effects to enhance apparent image qualities. At first, we show how the perceived image contrast and brightness can be improved by exploiting the Cornsweet and glare illusions. Then, we present techniques for hold-type blur reduction, which is inherent for LCD displays. Also, we investigate apparent resolution enhancements, which enable showing image details beyond the physical pixel resolution of the display device. Finally, we discuss the problem of perceived depth enhancement in stereovision, as well as comfortable handling of specular effects, film grain, and video cuts.

Biography:

Karol Myszkowski is a tenured senior researcher at the MPI Informatik, Saarbruecken, Germany. In the period from 1993 till 2000 he served as an associate professor in the Department of Computer Software at the University of Aizu, Japan. In the period from 1986 till 1992 he worked for Integra, Inc. a Japanbased, company specialized in developing rendering and global illumination software. He received his PhD (1991) and habilitation (2001) degrees in computer science from Warsaw University of Technology (Poland). In 2011 he was awarded with a lifetime professor title by the President of Poland. His research interests include perception issues in graphics, high dynamic range imaging, global illumination and rendering. Karol published and lectured on these topics widely including ACM Siggraph/Siggraph Asia Courses in 2001, 2002, 2004, 2006, and 2012. He also co-chaired Rendering Symposium in 2001, ACM Symposium on Applied Perception in Graphics and Visualization in 2008, Spring Conference on Computer Graphics 2008, and Graphicon 2012.

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