Stereo Image Processing  
by Priv. Doz. Dr. Oliver Schreer

**Date:** Monday, starting on 21st of October 2019 (2nd week of semester)  
**Time:** 10:00 - 12:00  
**Room:** MAR 6.051, Computer Science building Marchstr. 23

Passive depth analysis using stereo image processing is increasingly used in modern communication applications, virtual reality, augmented reality and new media production concepts. In this course, mathematical basics of the imaging process of a three-dimensional scene in one and more cameras are taught and the geometric relationship between several camera views is shown. In this context, the estimation of camera parameters and the correspondence analysis in stereo images will be discussed. The practical use of stereo image processing is illustrated by current research projects at Fraunhofer Heinrich Hertz Institute in the area of media production, industrial and medical domain. This course can be taken in all degree courses of the Faculty IV Electrical Engineering and Computer Science and has 3 ECTS. For this lecture, basic mathematical knowledge is required.

The related book (in german) for the lecture entitled by „Stereoanalyse und Bildsynthese“

**Topics:** Camera model, epipolar geometry, stereo analysis, homography, trifocale stereo, trifocal tensor, 3D reconstruction, image-based synthesis, other synthesis concepts (light-fields, panorama, ...)


**Contact:**  
PD Dr. Oliver Schreer,  
Fraunhofer Institut for Telecommunication  
Heinrich-Hertz-Institut, Berlin, Einsteinufer 37, 10587 Berlin  
Tel.: (++49) (30) 31002-620  
Email: oliver.schreer@hhi.fraunhofer.de  
web: www.hhi.fraunhofer.de/schreer