MARK BOSS

ML RESEARCHER
COMPUTER VISION/GRAPHICS

CONTACT

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ABOUT ME

I am a Ph.D. student under the supervision of Prof. Hendrik P. A. Lensch in the Computer Graphics Group at the University of Tübingen. My research interests lie at the intersection of machine learning and computer graphics. The main research question is how to perform inverse rendering on sparse and casual captured images. Here, I primarily focus on enabling efficient material appearance acquisition.

EDUCATION

Ph. D. Student

Jun 2018 - Present

University of Tübingen, Germany
Advisor: Prof. Hendrik P. A. Lensch

Master of Science (M. Sc.)

Feb 2016 - Apr 2018

University of Tübingen, Germany
Advisor: Prof. Hendrik P. A. Lensch
Thesis: CNN-based BRDF parameter estimation

Bachelor of Science (B. Sc.)

Sep 2012 - Feb 2016

Osnabrück University of Applied Sciences, Germany

WORK EXPERIENCE

Student Researcher - Google - Germany (Remote)

Jun 2021 - Apr 2022

Research on novel techniques for material, geometry and illumination disentanglement.

Research Intern - NVIDIA - Westford, MA

Apr 2019 - Jul 2019

Research on casual shape and material acquisition, which resulted in the publication: "Two-shot Spatially-varying BRDF and Shape Estimation"

Android Developer - zahlz - Osnabrück, Germany

Jul 2015 - Jun 2017

Development of an Android Application for a mobile payment system using Bluetooth LE.

SELECTED PUBLICATIONS

Neural-PIL: Neural Pre-Integrated Lighting for Reflectance Decomposition

Dec 2021 - *NeurIPS* - Mark Boss, Varun Jampani, Raphael Braun, Ce Liu, Jonathan T. Barron, Hendrik P. A. Lensch
Improvement of the NeRD method by learning a manifold of possible illuminations and BRDF alongside a neural network-based illumination integration method for faster rendering.

NeRD: Neural Reflectance Decomposition from Image Collections

Oct 2021 - *IEEE ICCV* - Mark Boss, Raphael Braun, Varun Jampani, Jonathan T. Barron, Ce Liu, Hendrik P. A. Lensch
A method that decomposes multiple images into shape, reflectance, and illumination by creating a consistent neural volume. Here, even different illuminations between images can be used, which allows for flexible capture setups.

Two-shot Spatially-varying BRDF and Shape Estimation

Jun 2020 - *IEEE CVPR* - Mark Boss, Varun Jampani, Kihwan Kim, Hendrik P. A. Lensch, Jan Kautz
A method capable of decomposing two images, one with flash and one without, into shape, reflectance, and illumination. Here, due to a sequential pipeline, the inference is even possible on mobile devices.