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Pixel Club
Technion computer vision colloquium

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הנכם מוזמנים להרצאה של

Antonín Šulc
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Light Field Analysis for Non-Lambertian Scenes

Abstract

The idea of light field technology is relatively old, however, apart from various attempts of construction of imaging devices which can densely capture scene radiance, only recent availability of devices from companies like Lytro and Raytrix started a significant increase of interest in the light field technology. The core idea of the light field is in the dense sampling of viewpoints where the dense collection of views distinguishes is from the sparse sampling in multiview stereo. Having access to the dense set of views allow us to, for instance, render novel perspectives without rendering the scene from its model but rather from interpolation of the nearby views and overcome the expensive extrinsic calibration step.

As for conventional computer vision, presence of materials which do not obey the Lambertian reflectance and cause viewpoint dependency lead to numerous problems with handling them. For this, light field provides an elegant structure for processing and consistently handling them with restrictions of the rich 4D light field with 2D epipolar plane images.

In this talk, we introduce light field technology and the epipolar plane images with various use cases and demonstrations on how to treat numerous non-Lambertian materials like glossy, specular and semi-reflective and semi-transparent surfaces. Furthermore, we show how to combine them with a linear algorithm for structure from motion, stitch them into living panoramas and make a volumetric 3D reconstruction from specular or semi-transparent surfaces.

Short Bio

Antonin Sulc received the B.Sc. and M.Sc. degrees in computer science engineering from Czech Technical University in Prague, Prague, Czech Republic, in 2011 and 2014, respectively. He is a PhD Candidate at the Department of Science at the University of Konstanz, Konstanz, Germany with specialisation on light field processing of non-Lambertian surfaces.

The lecture will take place on Tuesday, 21/04/2020 at 11:30

ההרצאה תתקיים ביום שלישי, 21.04.2020 בשעה 11:30

Department of Electrical Engineering
Electronics
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Communications

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