



THE WEIZMANN INSTITUTE OF SCIENCE  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Vision and Robotics Seminar

Room 1 ,Ziskind Building  
on Thursday, Dec 13, 2018  
at 12:15

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Google, Cambridge

Re-rendering Reality

Abstract:

We all capture the world around us through digital data such as images, videos and sound. However, in many cases, we are interested in certain properties of the data that are either not available or difficult to perceive directly from the input signal. My goal is to "Re-render Reality", i.e., develop algorithms that analyze digital signals and then create a new version of it that allows us to see and hear better. In this talk, I'll present a variety of methodologies aimed at enhancing the way we perceive our world through modified, re-rendered output. These works combine ideas from signal processing, optimization, computer graphics, and machine learning, and address a wide range of applications. More specifically, I'll demonstrate how we can automatically reveal subtle geometric imperfection in images, visualize human motion in 3D, and use visual signals to help us separate and mute interference sound in a video. Finally, I'll discuss some of my future directions and work in progress.

BIO: Tali is a Senior Research Scientist at Google, Cambridge, developing algorithms at the intersection of computer vision and computer graphics. Before Google, she was a Postdoctoral Associate at the Computer Science and Artificial Intelligence Lab (CSAIL) at MIT, working with Prof. William T. Freeman. Tali completed her Ph.D studies at the school of electrical engineering, Tel-Aviv University, Israel, under the supervision of Prof. Shai Avidan, and Prof. Yael Moses. Her research interests include computational photography, image synthesise, geometry and 3D reconstruction.