מכון ויצמן למדע

THE WEIZMANN INSTITUTE OF SCIENCE

FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Vision and Robotics Seminar

Room 1 ,Ziskind Building
on Thursday, May 17, 2018
at 12:15

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Technion

Deep Semi-supervised 3D Face Reconstruction

Abstract:

Fast and robust three-dimensional reconstruction of facial geometric structure from a single image is a challenging task with numerous applications in computer vision and graphics. We propose to leverage the power of convolutional neural networks (CNNs) to produce highly detailed face reconstruction directly from a single image. For this purpose, we introduce an end-to-end CNN framework which constructs the shape in a coarse-to-fine fashion. The proposed architecture is composed of two main blocks, a network which recovers the coarse facial geometry (CoarseNet), followed by a CNN which refines the facial features of that geometry (FineNet). To alleviate the lack of training data for face reconstruction, we train our model using synthetic data as well as unlabeled facial images collected from the internet. The proposed model successfully recovers facial geometries from real images, even for faces with extreme expressions and under varying lighting conditions. In this talk, I will summarize three papers that were published at 3DV 2016, CVPR 2017 (as an oral presentation), and ICCV 2017.

Bio: Matan Sela holds a Ph.D in Computer Science from the Technion - Israel Institute of Technology. He received B.Sc. and M.Sc. (both with honors) in electrical engineering, both from The Technion - Israel Institute of Technology in 2012 and 2015, respectively. During summer 2017, he was a research intern at Google, Mountain View, California. His interests are Machine Learning, Computer Vision, Computer Graphics, Geometry Processing and any combination of thereof.