



THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Vision and Robotics Seminar

Room 1 ,Ziskind Building
on Thursday, Dec 22, 2016
at 12:15

Greg Shakhnarovich
Toyota Technological Institute

Image colorization and its role in visual learning

Abstract:

I will present our recent and ongoing work on fully automatic image colorization. Our approach exploits both low-level and semantic representations during colorization. As many scene elements naturally appear according to multimodal color distributions, we train our model to predict per-pixel color histograms. This intermediate output can be used to automatically generate a color image, or further manipulated prior to image formation to "push" the image in a desired direction. Our system achieves state-of-the-art results under a variety of metrics. Moreover, it provides a vehicle to explore the role the colorization task can play as a proxy for visual understanding, providing a self-supervision mechanism for learning representations. I will describe the ability of our self-supervised network in several contexts, such as classification and semantic segmentation. On VOC segmentation and classification tasks, we present results that are state-of-the-art among methods not using ImageNet labels for pretraining. Joint work with Gustav Larsson and Michael Maire.