

SIPL Newsletter – Issue 9, August 2016

News from the Signal and Image Processing Laboratory
Andrew and Erna Viterbi Faculty of Electrical Engineering, Technion, Israel

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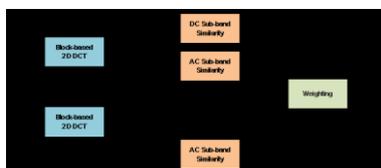
SIPL Activities



SIPL annual event took place on June, 27. In this event, we summarized our activities during last year. Slides, posters images and videos from the event can be found [here](#) and in our Facebook page.



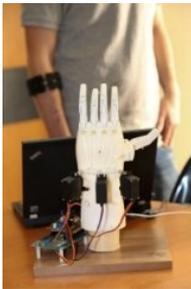
A team from *SIPL* has cooperated with Prof. Yuval Yaish to create a breakthrough technology that could help **replace silicon chips with molecular electronics based on carbon nanotubes** as the building block of electronics. Our team dealt with the task of recognizing nanotube lines in noisy images. [A paper describing this work](#) was published in Nature Communications. More information can be found [here](#).



A work of two *SIPL* students was presented in the International Conference on Multimedia Experience (QoMEX 2016) in Lisbon: **Reduced-Reference Image Quality Assessment Based on DCT Subband Similarity**.



In [our last issue](#), we have reported about two *SIPL* students who have developed a **new framework for testing reinforcement learning methods**. This project has just won the **2nd prize** in our department's **Kasher undergraduate student projects competition**.



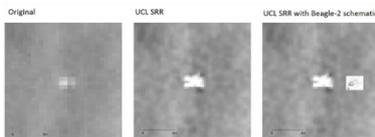
Two *SIPL* students developed a **3D printed robotic prosthesis hand**. The prosthesis is controlled based on an EMG signal (electrical activity produced by skeletal muscles) acquired with a MYO armband. More information and a demo video can be found here. The project won the **1st prize in the annual undergraduate projects competition in the department of biomedical engineering**.

Conferences and Events

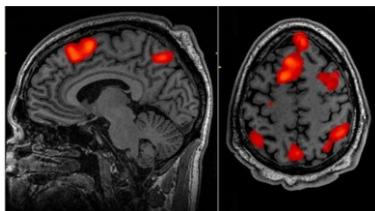
The IEEE 2016 International Conference on the Science of Electrical Engineering (ICSEE 2016) which replaces the formerly known “IEEE Convention of Electrical and Electronics Engineering in Israel” will take place Nov. 16-18 in Eilat. *SIPL* undergraduate and graduate students submitted several papers to this conference.

There are always some interesting seminars in the Pixel Club and SP&S seminar.

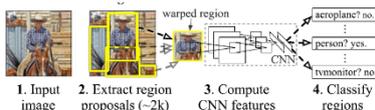
Other Signal and Image Processing News (more in our Facebook page)



The missing **Beagle 2 probe on the surface of Mars may have been found using image super-resolution**. More information can be found here.



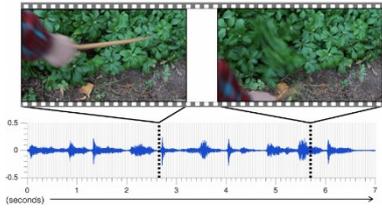
A problem discovered in fMRI software could invalidate years of brain research. A group of Swedish researchers found that software packages used for fMRI analysis frequently assign activity to a region when none is likely to be present. More information can be found here.



A work by Microsoft and Berkeley University researchers that uses deep learning for object detection improves the state-of-the-art results on the PASCAL VOC challenge datasets by more than 50%. A paper describing this work can found here.



Dreambit is a search engine that allows you to **upload a selfie and change hairstyle, places or time periods**. Everything is done totally automatic. Based on a [recent paper](#) in SIGGRAPH 2016. A demo video can be found [here](#).



Researchers from MIT have demonstrated an algorithm that **when shown a silent video clip of an object being hit, can produce a sound for the hit** that is realistic enough to fool human viewers. More information, demo videos and a [CVPR 2016 paper](#) describing this work can be found [here](#).



German researchers developed a technique that uses deep learning for **changing the artistic style of videos**. A demo video can found [here](#) and a paper describing this work can be found [here](#).



DeepHand is an algorithm from researchers at the University of Purdue that uses deep learning to **estimate the 3D pose of a hand** using depth data. [A paper describing this work](#) was presented in CVPR 2016. A demo video can be found [here](#).

SIPL recent industry collaborators



Comments and suggestions: sipl-newsletter@ee.technion.ac.il