

## The SIPL Newsletter – Issue 5, April 2015

עדכונים מהמעבדה לעיבוד אותות ותמונות, הפקולטה להנדסת חשמל, הטכניון

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### SIPL Activities

SIPL students presented their **augmented reality pinball** project in the 6<sup>th</sup> Israel Machine Vision Conference & Exhibition (IMVC 2015) in Tel-Aviv.

Project in the spotlight: Two SIPL student teams have developed novel algorithms for **fast quadtree partitioning for the HEVC video coding standard**. HEVC (High Efficiency Video Coding) is the successor of the H.264 compression standard and is considered by many as “the future of video coding”. One of its major innovations is a quadtree coding structure that contributes to better compression but incurs high computation complexity.

### Seminars

Yacov Hel-Or will give a seminar: Efficient Coding vs. Efficient Reconstruction in the Visual Cortex, Tuesday 21/4, 11:30 at Meyer 1061.

Sharon Gannot will give a seminar: Speaker Tracking Using Recursive EM Algorithms, Wednesday 6/5, 14:30 at Meyer building 1061.

Nir Ailon will give a seminar: Computational Lower Bounds for the Fourier Transform, Wednesday 13/5, 14:30 at Meyer building 1061.

Nir Sochen will give a seminar: Micron Level NMR Imaging, Tuesday 26/5, 11:30 at Meyer building 1061.

## Conferences and Events

Machine Vision 2015 Conference will take place May, 19-20 in Tel-Aviv. More details can be found [here](#). *Yair Moshe* will give a talk at this conference on “**Machine vision innovations with undergraduate students.**”

Afeka Conference for Speech Processing will take place June, 16 in Tel-Aviv. More details can be found [here](#).

## Other Signal and Image Processing News

[A paper from Microsoft Research](#) describes a gesture sensing technique with no special hardware. A loudspeaker is used to generate an inaudible tone which gets frequency-shifted when it reflects off moving objects like the hand. This signal is measured with a microphone and the shift is computed based on the Doppler effect. The proposed technique is implemented in [this webpage](#).

Recent papers that use deep neural networks present substantially improved results in the ImageNet object classification competition. A team from Google won the 2014 ImageNet competition. Improved results are reported in [a paper by Baidu](#). A more recent [paper by Microsoft Research](#) reports even better results that for the first time eclipse the abilities of people to classify objects. And these results were surpassed again in a recent [paper by Google](#).

In our last issue, we reported on techniques that use deep neural networks to generate sentences in English that describe scenes shown in photos. In a recent [paper from Google](#), similar techniques are used to classify sports YouTube videos. A video showing some of their results can be found [here](#).

Department of Electrical Engineering

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SIGNAL & IMAGE PROCESSING LAB



### SIPL recent industry collaborations



Comments and suggestions: [sipl-newsletter@ee.technion.ac.il](mailto:sipl-newsletter@ee.technion.ac.il)