

## The SIPL Newsletter – Issue 3, November 2014

עדכונים מהמעבדה לעיבוד אותות ותמונות, הפקולטה להנדסת חשמל, הטכניון

### SIPL Activities

Project in the spotlight – **Tone Mapping for Shortwave Infrared Face Images**. Sensing in the Shortwave Infrared (SWIR) range has only recently been made practical. The SWIR band is not visible to the human eye but shows shadows and contrast in its imagery. Moreover, SWIR sensors are highly tolerant to challenging atmospheric conditions such as fog and smoke. However, fundamental differences exist in the appearance between images sensed in visible and SWIR bands. In this project, a *SIPL* student developed a technique to map the tones of a human face acquired in the SWIR band to make it more similar to its appearance in the visible band. A paper describing this technique will be presented next week in the **IEEE 28<sup>th</sup> Convention in Israel**.

*SIPL* students have just started to work with two new exciting hardware development kits: The to-be-released **Intel RealSense 3D cameras** and **Epson Moverio BT-200 augmented reality glasses**.

In previous issues we reported on **an augmented reality pinball game** created by *SIPL* students. This game was presented few weeks ago on the main stage of the opening panel of the DLD Tel Aviv Digital Conference with Mr. Yossi Vardi and Mr. Shimon Peres. You can now see Mr. Peres playing pinball [here](#).

### Seminars

Leonid Mestetskiy will give a seminar: **Continuous medial representation of raster images in image shape analysis and classification**, Monday 1/12, Taub building 337.

### Conferences and Events

**IEEE 28<sup>th</sup> Convention in Israel** will take place 3-5/12 in Eilat. Four papers describing *SIPL* undergraduate projects as well as seven papers by *SIPL* graduate students will be presented in this event. The papers by *SIPL* undergraduate students are:

- Tone Mapping for Shortwave Infrared Face Images
- Low Complexity Image Compression of Capsule Endoscopy Images
- Edge Preserving Multi-Modal Registration Based On Gradient Intensity Self-Similarity
- Automatic Assessment of Parkinson's Disease From Natural Hands Movements Using 3D Depth Sensor

**The 2014 Israel Computer Vision Day** will take place Sunday 21/12 in IDC, Herzliya. More information about this event will soon appear [here](#).

### Other Signal and Image Processing News

Scripps Institution of Oceanography researchers [showed that it is possible](#) to use data from an urban seismic network to monitor the traffic of trains, planes, automobiles and other modes of human transport.

Microsoft [opens registration for early Skype Translator preview](#). Skype Translator works by translating both sides of a conversation into the other party's preferred language in real-time. More information can be found [here](#).

[PhotoMath](#) is an application for reading and solving mathematical expressions by using the camera of a mobile device. It incorporates interesting image processing algorithms for recognizing text of a math problem in real-time.

[Warblr](#) is a crowdfunding application that recognizes birds from their song ('Shazam for birdsongs'). It uses signal processing and machine learning techniques to match bird song varying speeds and cadences.

[Sesame](#) is a crowdfunding application that enables those with limited or no ability to use their hands to navigate their smartphone, by translating simple head movements into commands that the device will recognize.

### SIPL Industry Collaborations in 2014



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