# IDO ZACHEVSKY

054 · 2103343 ⋄ ido@tx.technion.ac.il ⋄ http://idozach.github.io
Trumpeldor Blvd. 25, Haifa, Israel 3258106

## OVERVIEW

I am pursuing my Ph.D. in image processing. Expected finish date: July 2017.

My research and other interests include:

- Deconvolution, blind deblurring and super-resolution via variational schemes, image statistics, wavelet analysis and Fourier domain analysis

- Texture analysis and 3D point cloud segmentation via machine learning

- Computer vision: Video tracking and classification based on convolutional neural networks

- Natural language processing: Textual entailment using recursive neural networks and LSTMs

I published papers in IEEE Transactions on Image Processing (TIP) and in image/signal processing conferences such as IEEE ICIP and IEEE ICASSP, as well as other conferences.

I have experience with MATLAB, Python, TensorFlow/Keras and other frameworks and languages.

## EDUCATION

**Technion - Israel Institute of Technology** *October 2011 - Present*
Ph.D. (direct track) in Electrical Engineering.

Thesis title: Models of stochastic textures and their applications in image processing.

Interests: Fractals, textures, image restoration and enhancement, super-resolution, variational frameworks, diffusion-based frameworks, stochastic processes, natural image statistics, machine learning, medical image processing, deep neural networks, natural language processing, video tracking and classification.

Current GPA: 93.3.

**Technion - Israel Institute of Technology** *January 2014*
M.A. in Electrical Engineering, obtained during Ph.D. studies.

**Technion - Israel Institute of Technology** *October 2007 - October 2011*
B.Sc. in Electrical Engineering

Specialities: Signal and image processing, control and computers.
Projects: Two projects in the subject of computer networks and a project in the image processing lab. One of the projects constituted a part of a published paper.

GPA: 87.6.

## AWARDS AND HONORS

- Special appreciation for teaching Random Signals, by the EE students' committee, 2016

- Jacobs–Qualcomm Fellowship, 2015 and 2016

- Best Student Paper Award, IEEE-Israel 2014

- Ollendorff Fellow, 2013

- BSc: Dean's list (four semesters) and President's list (one semester)

## WORK EXPERIENCE

**Technion - Israel Institute of Technology**                    October 2011 - Present
*Teaching assistant*                                                              *Haifa, Israel*

· Teaching assistant: Random Signals (head TA), Image Processing and Analysis, and Image Processing (graduate course).
· Instructor in lab 1/2/3: Basic and advanced labs (computer vision and advanced image processing).
· Supervision of undergraduate projects in Vision and Image Sciences Lab, including a **Thomas-Schwartz Award** winning project.

**Technion - Israel Institute of Technology**                              August 2015
*SciTech 2015 - science camp mentor*                                       *Haifa, Israel*

· Mentoring high-school students in an undergraduate-level project in the field of computer vision and image analysis.
· The project won the prize of **Best Presentation**.

**Intel Israel**                                          December 2009 - October 2011
*Logic Designer*                                                                 *Haifa, Israel*

· Logic designer in a PCIe team, at Intel Israel's Lan Access Division (LAD).
· Design was done in Verilog HDL with considerations for functional and synthesis requirements using designated software according to the project's demands and goals.

**Israel Defence Forces**                                      March 2004 - July 2007
*Electronic Warfare*

## SCIENTIFIC AND OTHER COMMUNITY ACTIVITIES

*Paper reviews for the following publications:*

· Journal of Mathematical Imaging and Vision
· IEEE Transactions on Image Processing
· EURASIP Journal on Image and Video Processing

  and several conferences.

*Quora and Wikipedia*

· Question answering in image/signal processing; ~39k answer views
· Won third place in the *Statistipedia 2016* contest for writing high-quality Hebrew entries in probability and statistics

## PUBLICATIONS

● I. Zachevsky and Y. Y. Zeevi, "Blind deblurring of natural stochastic textures using an anisotropic fractal model," *in preparation, to be submitted to IEEE Trans. Image Process.* (2017).

● I. Zachevsky and Y. Y. Zeevi, "A local phase model for textures and images with application in phase retrieval," *in preparation* (2017).

**Journal papers**

● I. Zachevsky and Y. Y. Zeevi, "Statistics of Natural Stochastic Textures and Their Application in Image Denoising," *IEEE Trans. Image Process.*, vol. 25, no. May, pp. 2130–2145, 2016.

● I. Zachevsky and Y. Y. Zeevi, "Single-Image Superresolution of Natural Stochastic Textures Based on Fractional Brownian Motion," *IEEE Trans. Image Process.*, vol. 23, no. 5, pp. 2096–2108, 2014.

**Conference proceedings**

- I. Zachevsky and Y. Y. Zeevi, "Exploiting Spatial Phase in Deconvolution of Structured Stochastic Textures," in *IEEE Int. Conf. Sci. Electr. Eng.*, 2016, pp. 1–5.

- G. Tennenholtz and I. Zachevsky, "Natural Contrast Enhancement for Dichromats using Similarity Maps," in *IEEE Int. Conf. Sci. Electr. Eng.*, 2016, pp. 1–5.

- I. Zachevsky and Y. Y. Zeevi, "Local and Global Fractal Behavior in Mammographic Images," in *Mediterranean Conference on Medical and Biological Engineering and Computing (MEDICON)*, 2016.

- I. Zachevsky and Y. Y. Zeevi, "Model-based Color Natural Stochastic Textures Processing and Classification," in *IEEE GlobalSIP*, 2015.

- I. Zachevsky and Y. Y. Zeevi, "Denoising of Natural Stochastic Colored-Textures based on Fractional Brownian Motion model," in *IEEE Int. Conf. Image Proces.*, 2015.

- I. Zachevsky and Y. Y. Zeevi, "Combining long-range dependencies with phase information in Natural Stochastic Texture enhancement," in *IEEE Int. Conf. Image Process.*, Paris, France, oct 2014.

- I. Zachevsky and Y. Y. Zeevi, "On the Statistics of Natural Stochastic Textures and Their Application in Pattern Analysis and Image Processing," in *IEEE 28th EE convention in Israel*, 2014. **Best Student Paper Award**.

- I. Zachevsky and Y. Y. Zeevi, "On the statistics of natural stochastic textures and their application in image processing," in *IEEE Int. Conf. Acoust. Speech Signal Process.*, Florence, Italy, may 2014, pp. 5829–5833.

- I. Zachevsky and Y. Y. Zeevi, "Single-image Superresolution of Self-Similar Textures," in *IEEE Int. Conf. Image Process.*, sep 2013, pp. 952–956.

- C. Basescu, C. Cachin, I. Eyal, R. Haas, A. Sorniotti, M. Vukolic, and I. Zachevsky, "Robust data sharing with key-value stores," in *42nd IEEE/IFIP International Conference on Dependable Systems and Networks (DSN) (Acceptance rate: 17%)*.   IEEE, 2012, pp. 1–12.

**Technical reports**

- I. Zachevsky and Y. Y. Zeevi, "On the phase of natural stochastic structured textures and its application in deconvolution and image decomposition," *CCIT Report, Tech.*, vol. 1855, no. 898, pp. 1–65, 2016.

- I. Zachevsky and Y. Y. Zeevi, "On the statistics of Natural Stochastic Textures," *CCIT Report. EE Pub, Tech. Isr. Inst. Technol.*, vol. 862, no. 1819, 2014.

- I. Zachevsky and Y. Y. Zeevi, "Superresolution of self-similar textures," *CCIT Report. EE Pub, Tech. Isr. Inst. Technol.*, vol. 838, no. 1795, 2013.