

# Roey MECHREZ

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<https://roimehrez.github.io/>

## PERSONAL DATA

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PhD from the Technion-Israel, where I worked with Prof. Lihi Zelnik-Manor. My work lies in the intersection of, computer vision, and deep learning. Specifically, my interests are in realistic image generation, manipulation and transformation. My research focuses on tools, algorithms, and new paradigms for photo editing and synthesis.

NATIONALITY The Netherlands, Israel  
LANGUAGES Hebrew (native), English (fluent)

## EDUCATION

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2015 - 2019 **PhD in Electrical Engineering**, *Technion – Israel Institute of Technology*  
Research area Computer Vision, Image editing and synthesis, Tracking and matching and Deep learning.  
Supervisor [Prof. Lihi Zelnik-Manor](#).  
Co-Supervisor [Dr. Eli Shechtman](#) (Adobe Research).

2012 - 2014 **M.Sc in Biomedical Engineering**, *Tel-Aviv University*  
Thesis title Patch-based Segmentation for MS lesions, [link](#).  
Supervisor Prof. [Hayit Greenspan](#) and Prof. [Jacob Goldberger](#) (*Bar-Ilan University*)  
Score 95.1(100) **Cum Laude**; [link](#)  
We proposed a fully automatic method for segmentation of Multiple sclerosis (MS) lesions in brain MRI. The method is based on similarities between multi-channel patches.

2010 - 2013 **B.Sc in Biomedical Engineering**, *Tel-Aviv University*  
Score 91.1(100) **Cum Laude**; [link](#)

## PUBLICATIONS

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- 2019 **Saliency Driven Image Manipulation** (extended version)  
*Mechrez, R., Shechtman, E. and Zelnik-Manor, L.,*  
Machine Vision and Applications (special issue: IEEE WACV'18). [link](#)
- 2018 **Adversarial Feedback Loop**  
*Shama, F., Mechrez, R., Shoshan, A., and Zelnik-Manor, L.,*  
submitted to ICCV'19. [arXiv](#).
- 2018 **Dynamic-Net: Tuning the Objective Without Re-training**  
*Shoshan, A., Mechrez, R., and Zelnik-Manor, L.,*  
submitted to ICCV'19. [arXiv](#).
- 2018 **Improving CNN Training using Disentanglement for Liver Lesion Classification in CT**  
*Ben-Cohen, A., Mechrez, R., Yedidia, N. and Greenspan, H.,*  
to appear in EMBC [arXiv](#)
- 2018 **The 2018 PIRM Challenge on Perceptual Image Super-resolution** [link](#)  
*Blau, Y\*, Mechrez, R.\*, Timofte, R., Michaeli, T. and Zelnik-Manor, L.,*  
ECCV workshop. [arXiv](#).
- 2018 **The Contextual Loss for Image Transformation with Non-Aligned Data.** [link](#)  
*Mechrez, R.\*, Talmi, I\*. and Zelnik-Manor, L., ECCV.* [arXiv](#).  
Selected for full oral presentation at the conference. Acceptance rate 2.4%.  
(60 papers out of 3000 submissions.)
- 2018 **Maintain Natural Image Statistics with the contextual loss.** [link](#)  
*Mechrez, R.\*, Talmi, I\*, Shama, F. and Zelnik-Manor, L., ACCV.* [arXiv](#).
- 2018 **Saliency Driven Image Manipulation.** **Best paper – people choice**  
*Mechrez, R., Shechtman, E. and Zelnik-Manor, L., WACV .* [link](#)
- 2017 **Photorealistic Style Transfer with Screened Poisson Equation.**  
*Mechrez, R., Shechtman, E. and Zelnik-Manor, L., BMVC.* [link](#)
- 2017 **Template Matching with Deformable Diversity Similarity.** (Spotlight) [link](#)  
*Talmi, I\*, Mechrez, R.\* and Zelnik-Manor, L., CVPR.*  
Selected for a **spotlight** presentation at the conference. Acceptance rate 8%.  
(215 papers selected for spotlight oral or full oral out of 2620 submissions.)
- 2016 **Patch-based Segmentation with Spatial Consistency: application to MS Lesions in Brain MRI.**  
*Mechrez, R., Goldberger, J. and Greenspan, H., in International Journal of Biomedical Imaging.* [link](#)
- 2015 **MS lesion segmentation using a multi-channel patch-based approach with spatial consistency.**  
*Mechrez, R., Goldberger, J. and Greenspan, H., in SPIE Medical Imaging. International Society for Optics and Photonics.* [link](#)

## SCHOLARSHIPS AND AWARDS

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- 2019 **Excellence Scholarship Faculty Funding**  
*The Technion Israel*
- 2018 **KLA academic excellence award - for the WACV'18 paper**  
*The Technion Israel* [link](#)
- 2018 **KLA outstanding conference papers award - for the ECCV'18 paper**  
*The Technion Israel*
- 2018 **Best papers (people choice) - WACV'18**  
*IEEE Winter Conf. on Applications of Computer Vision* [link](#)
- 2018 **WACV PhD Forum – Traveling Grant**  
*IEEE Winter Conf. on Applications of Computer Vision* [link](#)
- 2017 **The Andrew and Erna Finci Viterbi Fellowship Program**  
*The Technion Israel* [link](#)
- 2017 **Traveling grant - Workshop on Machine Learning and Computer Vision,**  
*Janelia Research Campus* [link](#)
- 2014 **Excellence in Research Studies Award,**  
*Tel-Aviv University School of Engineering* [link](#)
- 2013 **Scholarship for Meritorious Achievement in B.Sc studies**  
*Tel-Aviv University School of Engineering.*
- 2012 **Dean's List, Tel-Aviv University School of Engineering.**
- 2009 **Dean's List, Tel-Aviv University School of Engineering.**

## SERVICE

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- 2018 **Organizing PIRM: Workshop and Challenge on Perceptual Image Restoration and Manipulation** in conjunction with ECCV. [website](#).
- 2019 **CVPR - Reviewer**
- 2018 **ECCV - Reviewer**
- 2018 **ICCV - Reviewer**
- 2018 **CVPR - Outstanding Reviewers**

## EXPERIENCE

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Present	<b>CTO</b> , <i>BeyondMinds</i> , Tel-Aviv, Israel.
2019	<b>Senior Research Scientist</b> , <i>BeyondMinds</i> , Tel-Aviv, Israel.
2019 (March)	<b>Lecturer: CNN for Computer Vision Winter School</b> , <i>The Technion</i> Based on the seminal course by Stanford University – CS231n. <a href="#">link</a>
2016 - 2018	<b>Teaching Assistant</b> , <i>The Technion</i> Computer Vision Algorithms (EE) <a href="#">2017</a> , <a href="#">2018</a> .
2015 - 2019	<b>Undergraduate Project Mentor</b> , <i>The Technion</i> I have mentored more than 15 projects in the field of computer vision and deep learning.
2017 (May-July)	<b>Researcher intern</b> , <i>IBM Research Haifa</i> Computer Vision and Augmented Reality group Supervisor: Leonid Karlinsky, PhD
2016 - 2017	<b>Pixel Club coordinator</b> , <i>The Technion</i> a joint CS and EE colloquium on computer vision, image processing and computer graphics, and any other "pixel" oriented field. <a href="#">website</a> .
2015 - 2016	<b>Teaching Assistant</b> , <i>The Technion</i> Data Structures and Algorithms
2013 - 2015	<b>Algorithm Engineer</b> , <i>RSIP Vision - Tel-Aviv</i> image processing, computer vision, image registration and heart conduction models.
2012 - 2014	<b>Teaching Assistant</b> , <i>Tel-Aviv University</i> Pattern Recognition, Introduction to Chemistry, Medical Signals Processing laboratory (NMR, MRI, ultrasound and imaging).

## COMPUTER SKILLS

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Scientific	Experience with Python and MATLAB. Deep learning with TensorFlow, pyTorch and MatConvNet
Programming	Basic Knowledge of C and C++

## MILITARY SERVICE

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2003 - 2009	Full military service as a Air Traffic Controller (ATC). Still in active reserve duty as ATC (Major). Commander of sub-unit of 30 soldiers; operational flight; control system Characterization; leading of system implementation process; in charge of officers training
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