

Roey MECHREZ, PhD

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

PERSONAL DATA

I'm the CTO and a Co-founder at BeyondMinds where I lead a group of top AI researchers and scientists. Prior to joining BeyondMinds I did my PhD at the Technion-Israel, where I worked with Prof. Lihi Zelnik-Manor. My work lies at the intersection of computer vision and deep learning. Specifically, my research interests are in realistic image generation, manipulation, and transformation, focussing on tools, algorithms, and new paradigms for photo editing and synthesis. During my PhD research I was worked on Image-to-image problems, Image Generation and GANs, Super-resolution, Photorealistic synthesis, and Template Matching. My masters and bachelors were done at Tel Aviv University in Biomedical Engineering (cum laude).

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

EDUCATION

2015 - 2019	PhD in Electrical Engineering , <i>Technion — Israel Institute of Technology</i>
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 , <i>Tel-Aviv University</i>
Thesis title	Patch-based Segmentation for MS lesions, link .
Supervisor	Prof. Hayit Greenspan and Prof. Jacob Goldberger (<i>Bar-Ilan University</i>)
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 , <i>Tel-Aviv University</i>
Score	91.1/(100) Cum Laude ; link

- 2020 **Self-Supervised Dynamic Networks for Covariate Shift Robustness**
Cohen, T., Shulman N., Morgenstern H., Mechrez R., Farhan, E.,
under review. [arXiv](#).
- 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.,
ICCV'19. [arXiv](#).
- 2018 **Dynamic-Net: Tuning the Objective Without Re-training**
Shoshan, A., Mechrez, R., and Zelnik-Manor, L.,
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.,
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

- 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

- 2020 **Co-Organizing AIM: Advances in Image Manipulation workshop and challenges on image and video manipulation in conjunction with ECCV.**
[website.](#)
- 2018 **Organizing PIRM: Workshop and Challenge on Perceptual Image Restoration and Manipulation in conjunction with ECCV.** [website.](#)
- CVPR 2018, 2019, 2020 - Reviewer
- ECCV 2018, 2019, 2020 - Reviewer
- ICCV 2018, 2019, 2020 - Reviewer
- [CVPR Outstanding Reviewers](#)

EXPERIENCE

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

COMPUTER SKILLS

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

MILITARY SERVICE

- 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