

Eli Schwartz – Curriculum Vitae

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Haifa, Israel

Education

- 2019-present** **Ph.D. Electrical Engineering, Tel Aviv University, Israel**
- Advisors – Dr. Raja Giryes (TAU) and Prof. Alex Bronstein (CS@Technion)
 - Thesis – “Small-Data in the Big-Data Era”, Deep Learning with limited data.
- 2016-2018** **M.Sc. Electrical Engineering, Tel Aviv University, Israel**
- Advisors – Dr. Raja Giryes (TAU) and Prof. Alex Bronstein (CS@Technion)
 - Thesis – “**Learning an End-to-End Image Processing Pipeline**”. First to show learning of the full camera image processing pipeline in an end-to-end fashion.
- 2007-2011** **B.Sc. Electrical Engineering, Technion - Israel institute of technology**
- Specialized in - Signal and Image Processing, Computer Engineering, Biological signals and Systems
 - Final project - Detection of manipulations (“photoshopping”) in images
 - Thomas Schwartz Award for outstanding projects in computer vision

Employment

- 2017-Present** **Computer Vision Research – IBM Research AI**
- Conducting and publishing research on deep-learning based few-shot object recognition and detection
- 2015-2017** **Co-founder & CTO – Inka Robotics**
- A startup developing a vision-based autonomous tattooing robot
 - Led the technical team developing algorithms, software & micro-controllers
 - Turn it from idea to a working prototype (that tattooed my leg)
- 2013-2016** **Computer Vision Algorithm Developer – Microsoft**
- Worked on the HoloLens Project (augmented reality smart glasses)
 - Part of an incubation team – fast development of PoC for innovative technologies
 - Developed computer vision algorithms for 3D cameras and Gaze tracking
- 2011-2013** **ASIC Engineer – Qualcomm**
- Formal verification technical lead
 - Functional verification
- 2008-2011** **ASIC Engineering Intern – IBM**
- ASIC formal and functional verification
- 2002-2005** **Military Service - Combat military service in the Armored Corps, IDF**

Teaching

- 2018** TA (Projects supervision) - Deep Learning (CS@Technion)
- 2017-Present** Supervising undergrad students final projects (EE@Tel-Aviv University)

Languages

Hebrew – Mother tongue, English – fluent

Programming languages and environments

TensorFlow/Pytorch/Theano, OpenCV, Python, Matlab, C++, C, Linux

Publications and Patents

Published papers

E. Schwartz*, L. Karlinsky*, R. Feris, R. Giryes and A. Bronstein, *"Baby steps towards few-shot learning with multiple semantics"*, CVPR 2019 (Workshop) [pdf](#)

N. Diamant*, D. Zadok*, C. Baskin, **E. Schwartz** and A. M. Bronstein, *"Beholder-GAN: Generation and Beautification of Facial Images with Conditioning on Their Beauty Level"*, IEEE International Conference on Image Processing (ICIP), 2019 [pdf](#)

L. Karlinsky*, J. Shtok*, S. Harary*, **E. Schwartz***, M. Marder, S. Pankanti, R. Feris, A. Kumar, R. Giryes and A. Bronstein, *"RepMet: Representative-based metric learning for classification and one-shot object detection"*, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2019 [pdf](#)

E. Schwartz*, L. Karlinsky*, J. Shtok, S. Harary, M. Marder, R. Feris, A. Kumar, R. Giryes and A. Bronstein, *"Delta-encoder: an effective sample synthesis method for few-shot object recognition"*, Conference on Neural Information Processing Systems (NeurIPS), 2018 (Spotlight) [pdf](#)

E. Schwartz, R. Giryes and A. M. Bronstein, *"DeepISP: Learning End-to-End Image Processing Pipeline"*, IEEE Transactions on Image Processing, 2018 [pdf](#)

Submitted and Arxiv papers

Sivan Doveh*, **Eli Schwartz***, Chao Xue, Rogerio Feris, Alex Bronstein, Raja Giryes, Leonid Karlinsky *"MetAdapt: Meta-Learned Task-Adaptive Architecture for Few-Shot Classification"*, 2019 [pdf](#)

C. Baskin, N. Liss, Y. Chai, E. Zheltonozhskii, **E. Schwartz**, R. Giryes, A. Mendelson and A. M. Bronstein, *"NICE: Noise Injection and Clamping Estimation for Neural Network Quantization"*, 2018 [pdf](#)

C. Baskin*, **E. Schwartz***, E. Zheltonozhskii, N. Liss, R. Giryes, A. M. Bronstein and A. Mendelson, *"UNIQ: Uniform Noise Injection for the Quantization of Neural Networks"*, 2018 [pdf](#)

Patents

L. Karlinsky, E. Schwartz, J. Shtok, M. Marder and S. Harary, *"Representative-Based Metric Learning for Classification and Few-Shot Object Detection."* US patent application No. 16/240,927.

C. Baskin, E. Schwartz, E. Zheltonozhskii, N. Liss, R. Giryes, A. M. Bronstein and A. Mendelson, *"System and method for emulating quantization noise for a neural network."* US provisional patent application No. 62/661,016.

E. Schwartz, R. Giryes and A. M. Bronstein, *"Method and system for end-to-end image processing."* U.S. Patent Application No. 16/251,123.

E. Shalev, S. Katz, and E. Schwartz. *"Imaging devices and methods for authenticating a user."* U.S. Patent Application No. 14/995,025.

*Equal contributors