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Research Machine and Deep Learning, Memorization in Neural Networks,

Interests Generative Models, Computer Vision

Education Weizmann Institute of Science, Rehovot, Israel 2018 - 2023

Ph.D. Student, Computer Science and Applied Math

Advisor: Prof. Michal Irani

Weizmann Institute of Science, Rehovot, Israel 2015 - 2018

M.Sc., Computer Science and Applied Math

Advisor: Prof. Boaz Katz (Department of Astrophysics)

Technion, Haifa, Israel 2011 - 2015

B.Sc., Computer Science. B.Sc., Physics

Lapidim excellence program<sup>†</sup>

Employment Lecturer (Freelance) 2019 - 2023

HISTORY I collaborate with education providers (DART, Y-Data, Primrose, and SagivTech)

delivering courses on diverse subjects such as Machine and Deep Learning,

Generative AI, Image Processing, Python, MATLAB etc.

Hebrew University, Research Assistant 2015 - 2015

Developed machine learning tools for analysis of political discourse

Tonara, Backend Developer 2011 - 2014

Developed data/image processing tools for musical applications

**IDF**, Team Leader 2007 - 2010

Managed analysts team and coordinated between multiple organizations

TEACHING

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Advanced Topics in Computer Vision and Deep Learning

[Spring 2020, Spring, 2021, Spring 2022, Spring 2023]

Deep Learning for Computer Vision

[Winter 2021, Winter 2022]

Deep Neural Networks - a Hands-On Challenge [Spring 2017]

<sup>&</sup>lt;sup>†</sup>Technion CS department excellence program for first-rate computer science students with the potential for leadership or entrepreneurial pursuits (5 accepted students each year).

#### Invited Talks

- 05.07.23 Tel Aviv University ML/CV Seminar, Invited by Prof. Shai Avidan
- 22.05.23 Talk at Trigo Vision, Invited by Hadar Gorodissky
- 24.04.23 Talk at General Motors, Invited by Dr. Shaul Oron
- 16.01.23 Israel Computer Vision Day, Hosted by Prof. Shai Avidan
- 20.12.22 Microsoft Data Science Bond (DSBond) [Recording]
- 06.12.22 Talk at Google NYC, Invited by Dr. Daniel Glasner
- 13.11.22 Hebrew University of Jerusalem (HUJI), Invited by Prof. Shmuel Peleg
- 31.08.22 Machine Learning Seminar at Healthy.io. Invited by Sivan Biham
- 27.03.22 Hebrew University of Jerusalem (HUJI), Invited by Prof. Shmuel Peleg
- 06.05.21 Intro to Adversarial Examples at Weizmann DL4CV course WIS
- 17.12.17 Israel Physical Society Conference 2017. Hosted by Prof. Hagai Perets

#### Publications

- [1] "SinFusion: Training Diffusion Models on a Single Image or Video", Y.Nikankin\*, N.Haim\*, M.Irani. **ICML 2023**
- [2] "Reconstructing Training Data from Multiclass Neural Networks",
- G.Buzaglo\*, N.Haim\*, G.Yehudai, G.Vardi, M.Irani. ICLR 2023 TrustML Workshop
- [3] "Reconstructing Training Data from Trained Neural Networks",
- N.Haim\*, G.Vardi\*, G.Yehudai\*, O.Shamir, M.Irani. NeurIPS 2022; Oral
- [4] "Diverse Generation from a Single Video Made Possible",
- N.Haim\*, B.Finestein\*, N.Granot, A.Shocher, S.Bagon, T.Dekel, M.Irani.

## **ECCV 2022**

- [5] "From Discrete to Continuous Convolution Layers",
- A.Shocher\*, B.Finestein\*, N.Haim\*, M.Irani. Technical Report 2020
- [6] "Implicit Geometric Regularization for Learning Shapes",
- A.Gropp, L.Yariv, N.Haim, M.Atzmon, Y.Lipman. ICML 2020
- [7] "Controlling Neural Level Sets",
- M.Atzmon, N.Haim, L.Yariv, O.Israelov, H.Maron, Y.Lipman. NeurIPS 2019
- [8] "Surface Networks via General Covers",
- N.Haim\*, N.Segol\*, H.Ben-Hamu, H.Maron, Y.Lipman. ICCV 2019
- [9] "Extreme close approaches in hierarchical triple systems with comparable masses", N.Haim, Boaz Katz.

## Monthly Notices of the Royal Astronomical Society 2018

# Honors and Awards

Hurvitz Scholarship, 2022

Technion - graduated Cum Laude, 2015

Technion AI Course Multi-Agent Competition  $\mathbf{1}^{st}$  Place, 2013

"Mekor Haim", IDF Intelligence Technological Unit award

for outstanding professional excellence, 2010

<sup>\*</sup>Denotes equal first author.