Niv Haim

Contact

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Research Interests

Machine and Deep Learning, Memorization in Neural Networks, Generative Models, Computer Vision

Education

Weizmann Institute of Science, Rehovot, Israel **2018 - 2023**
Ph.D. in Computer Science and Applied Mathematics
Advisor: Prof. Michal Irani

- Research in the areas of Memorization in Neural Networks, Generative Models, Implicit Representations, Geometric Deep Learning.

Weizmann Institute of Science, Rehovot, Israel **2015 - 2018**
M.Sc. in Computer Science and Applied Mathematics
Advisor: Prof. Boaz Katz (Department of Astrophysics)

- Thesis: Extreme close approaches in hierarchical triple systems with comparable masses.

Technion, Haifa, Israel **2011 - 2015**
B.Sc. in Physics (Cum Laude)
B.Sc. in Computer Science (Cum Laude)

- Technion CS department Excellence Program - Lapidim (5 students per year)
- 1^{st} Place in Technion AI Course Multi-Agent Competition (against 40 groups)

Employment History

Lecturer (Freelance) **2019 - 2023**
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 in Hebrew.

Tonara, Backend Developer **2011 - 2014**
Solving various tasks, including image processing for musical applications (e.g., parsing music sheets and XML files), developing server-client communication, managing the company's database, and creating tools for user analytics.

IDF, Team Leader **2007 - 2010**
Managed a team of analysts and coordinated between multiple organizations.

Awards

Hurvitz Scholarship, 2022

"Mekor Haim", IDF Intelligence Technological Unit Award for outstanding professional excellence, 2010

Publications

Deconstructing Data Reconstruction: Multiclass, Weight Decay and General Losses,
G.Buzaglo*, N.Haim*, G.Yehudai, G.Vardi, Y. Oz, Y. Nikankin, M.Irani.
NeurIPS 2023

SinFusion: Training Diffusion Models on a Single Image or Video,
Y.Nikankin*, N.Haim*, M.Irani.
ICML 2023

Reconstructing Training Data from Trained Neural Networks,
N.Haim*, G.Vardi*, G.Yehudai*, O.Shamir, M.Irani.
NeurIPS 2022 (Oral)

Diverse Generation from a Single Video Made Possible,
N.Haim*, B.Finestein*, N.Granot, A.Shocher, S.Bagon, T.Dekel, M.Irani.
ECCV 2022

From Discrete to Continuous Convolution Layers,
A.Shocher*, B.Finestein*, N.Haim*, M.Irani. Technical Report 2020

Implicit Geometric Regularization for Learning Shapes,
A.Gropp, L.Yariv, N.Haim, M.Atzmon, Y.Lipman.
ICML 2020

Controlling Neural Level Sets,
M.Atzmon, N.Haim, L.Yariv, O.Israelov, H.Maron, Y.Lipman.
NeurIPS 2019

Surface Networks via General Covers,
N.Haim*, N.Segol*, H.Ben-Hamu, H.Maron, Y.Lipman.
ICCV 2019

Extreme close approaches in hierarchical triple systems with comparable masses,
N.Haim, Boaz Katz.
Monthly Notices of the Royal Astronomical Society 2018

*Denotes Equal First Author.

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

Teaching (@ Weizmann Institute)

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]