

Eliahu Horwitz

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Setting out in the world of computing, I began as a self-taught software developer and worked with different technologies across the tech stack. A few years ago I decided to transition to research. I am currently pursuing a PhD in Computer Science. My passion is demystifying complex ideas and developing simpler, intuitive alternatives.

EDUCATION

- PhD Computer Science, advisor Prof. Yedid Hoshen, The Hebrew University of Jerusalem 2022-2026 (*anticipated*)
- M.Sc Computer Science, advisor Prof. Yedid Hoshen, The Hebrew University of Jerusalem 2021-2022
- B.Sc Computer Science, The Hebrew University of Jerusalem 2017-2021

AWARDS

- Selected as a recipient of the "Israel Council for Higher Education Scholarship for Outstanding PhD Students in Artificial Intelligence and Data Science (VATAT)" 2024-2027
(Selected for a three year scholarship – awarded to 20 outstanding PhD students from the entire country)
- Selected as a recipient of the "KLA Scholarship for Outstanding Graduate Students" 2022
(Awarded to 3 M.Sc students from the Hebrew University)
- Selected as a recipient of the "Center for Interdisciplinary Data Science Research" (CIDR) fellowship 2021-2023
(Selected for two consecutive years - awarded to outstanding research students in data core science from the Hebrew University)
- Dean's List 2019-2020
(During my B.Sc)

PUBLICATIONS

- Representing Model Weights with Language using Tree Experts** (*Arxiv Preprint*) 2024
Eliahu Horwitz*, Bar Cavia*, Jonathan Kahana*, Yedid Hoshen
<https://horwitz.ai/probex>
- Deep Linear Probe Generators for Weight Space Learning** (*Arxiv Preprint*) 2024
Jonathan Kahana, Eliahu Horwitz, Imri Shuval, Yedid Hoshen
<https://vision.huji.ac.il/probegen>
- Dataset Size Recovery from LoRA Weights** (*Arxiv Preprint*) 2024
Mohammad Salama, Jonathan Kahana, Eliahu Horwitz, Yedid Hoshen
<https://vision.huji.ac.il/dsire>
- Real-Time Deepfake Detection in the Real-World** (*Arxiv Preprint*) 2024
Bar Cavia, Eliahu Horwitz, Tal Reiss, Yedid Hoshen
<https://vision.huji.ac.il/ladeda>
- Model Tree Heritage Recovery** (*Arxiv Preprint*) 2024
Eliahu Horwitz, Asaf Shul, Yedid Hoshen
<https://horwitz.ai/mother>
- Distilling Datasets Into Less Than One Image** (*Arxiv Preprint*) 2024
Asaf Shul*, Eliahu Horwitz*, Yedid Hoshen
<https://horwitz.ai/podd>
- Recovering the Pre-Fine-Tuning Weights of Generative Models** (*ICML 2024*) 2024
Eliahu Horwitz, Jonathan Kahana, Yedid Hoshen
https://horwitz.ai/spectral_detuning
- Dreamix: Video Diffusion Models are General Video Editors** (*Arxiv Preprint*) 2023
Eyal Molad*, Eliahu Horwitz*, Dani Valevski*, Alex Rav Acha, Yossi Matias, Yael Pritch, Yaniv Leviathan†, Yedid Hoshen†
<https://dreamix-video-editing.github.io>
- Confusion: Confidence Intervals for Diffusion Models** (*Arxiv Preprint*) 2022
Eliahu Horwitz, Yedid Hoshen
<https://horwitz.ai/confusion>
- Back to the Feature: Classical 3D Features are All You Need for 3D Anomaly Detection** (*VAND - CVPR 23' workshop*) 2022
Eliahu Horwitz, Yedid Hoshen
https://horwitz.ai/3d_ads

- Anomaly Detection Requires Better Representations** (*Self Supervised Learning: What is Next? - ECCV 22' workshop*) 2022
 Tal Reiss, Niv Cohen, **Eliahu Horwitz**, Ron Abutbul, Yedid Hoshen
http://vision.huji.ac.il/ssrl_ad
- DeepSIM: Image Shape Manipulation from a Single Augmented Training Sample** (*ICCV 21' - Oral Presentation*) 2021
 Yaek Vinker*, **Eliahu Horwitz***, Nir Zabari, Yedid Hoshen
<http://vision.huji.ac.il/deepsim>

WORK EXPERIENCE

- Student Researcher at Google Research** (*Full-Time Internship*) 2022-2023
- Conducted research on text-to-video diffusion models
- Research Summer Internship at Lightricks** (*Full-Time Internship*) 2021 (*summer*)
- Worked on generating synthetic datasets by using the inner representation of pretrained GANs
- Software Engineer at Salesforce, Root Cause Analysis Team** (*Part-Time*) 2020-2021
- Developed a "static code analysis" tool for security vulnerabilities prioritization - used by security researchers
- Senior Full-Stack .NET and React Developer at Valsecco** (*Part-Time*) 2018-2020
- Played a key role in the development lifecycle, shipping features across the tech-stack
- Senior Android and Node.js Server-Side Developer at StorePower** 2016-2018
- Migrated an Android app from legacy code to "clean architecture" while providing white-labeling capabilities
- Android and .NET Developer at an Incubator (LV Holdings – ByWriter, Kyozu)** 2014-2016
- Designed and implemented scalable components with an emphasis on parallelized data mining

TEACHING EXPERIENCE

- Teaching Assistant in the "Engineering Projects" Course at the Hebrew University** 2023-Present
- Mentoring 3 teams in the creation of their applications from both product and development standpoints
- Teaching Assistant in the "Web Application Development" Course at the Hebrew University** 2023-Present
- Delivering lectures on essential concepts in web development, covering backend and frontend aspects
 - Mentoring 8 teams in the creation of their applications from both product and development standpoints
- Teaching Assistant in the "Image Processing" Course at the Hebrew University** 2020-Present
- Designing and writing exercises in traditional image processing and deep learning
 - Providing exercises related support to the students and holding weekly office hours
- Teaching Assistant in the "Nueral Networks for Images" Course at the Hebrew University** 2022
- Providing exercises related support to the students

ADDITIONAL EXPERIENCE

- Analysis Intern at fresh.fund Early-Stage VC** (*Internship*) 2018-2019
- Performed in-depth technical due diligence to evaluate prospective investment offerings
- Developing "Fondo - Interactive Wallpaper" Android App** (*Side Project*) 2015-2016
- Created an Android app to display information on the devices wallpaper, interfacing with various APIs and SDKs
 - Gained a deep understanding of product development stages emphasizing UI, UX, and Software Architecture
- Military Service, Malnap-Merkaz (Network Backbone Room of Central Command, C4I)** 2011- 2014
- Led a team of 20 soldiers. Planned, implemented, integrated, and maintained computer-based networks.