# Ido Nitzan Hidekel

Deep Learning Researcher

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## SUMMARY

Deep learning researcher and applied research engineer with 3+ years of experience in representation learning and analysis of generative model outputs.
Background in applied mathematics and electrical engineering, with a research focus on spectral bias, optimization dynamics, and frequency-aware learning.
Experienced in designing and evaluating neural networks that expose high-frequency artifacts and failure modes of modern generative models, and in translating theoretical insights into robust, production-grade systems.
Currently an M.Sc. thesis student planning a direct PhD track.

## RESEARCH & PROFESSIONAL EXPERIENCE

**Deep Learning Researcher | Geometric Deep Learning Lab| 2024–present**

- Designed a frequency-guided learning framework for analyzing outputs of modern generative models, addressing the failure of standard deep networks to capture high-frequency artifacts introduced during generation.
- Proposed architectures and loss formulations that explicitly couple low-frequency semantic structure with high-frequency residual components, improving sensitivity to subtle generative artifacts.
- Achieved state-of-the-art results on real-world deepfake detection benchmarks, demonstrating strong generalization to unseen generators.
- Paper under submission to ICML, LINK

**Deep Learning Research Engineer (Applied R&D) | Dtect Vision| 2025–present**

- Developed production-grade deep learning systems for analyzing and detecting artifacts in generated audio and images.
- Translated theoretical insights on spectral bias and frequency-domain behavior of neural networks into deployable models.
- Built scalable data pipelines and training workflows on GCP, supporting large-scale experimentation and evaluation.

## SKILLS

**Deep Learning & ML**

- PyTorch, Lightning, Torch DDP
- CNNs, Large encoders, representation learning, Generative models
- Loss design, regularization, architectural inductive bias
- Signal processing for audio and vision
- Analysis of generative model artifacts and failure modes

**Engineering & Systems:**

- Python, NumPy, Pandas
- Docker, GCP, large-scale training
- Experiment design, ablations, reproducibility

## EDUCATION

**Masters of Science | Electrical Engineering | Tel Aviv University | 2024-present**

- *Focus: Mathematical foundations of Deep Learning, spectral bias, and optimization dynamics*
- *Planning to move to Ph.D direct track*
- GPA: 95.5

**Degree Non-Studies Complementary towards M.s | Tel Aviv University | 2024-2025**

- GPA: 98
- fundamental courses in electrical engineering:
- Random signals and noise, Signal processing and Intro to control theory

**Bachelor of Science in applied mathematics | Tel Aviv University | 2020-2024**

- Coursework: Probability, Statistics, Optimization, Stochastic Processes, Machine Learning, Numerical Methods