Morris Alper, Ph.D.

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📑 Google Scholar   GitHub   in LinkedIn

I research creative multimodal machine learning inspired by linguistics — how structures encoded by language provide a tool for interpreting and controlling modalities such as vision and audio, ML as a creativity aid, and innovative methods for low-resource languages.

Education

2023 – 2025	**Ph.D., Tel Aviv University** Electrical Engineering (Machine Learning) Advisors: *Dr. Hadar Averbuch-Elor, Dr. Raja Giryes* Dissertation: *Multimodal Learning for High-Level Semantic Understanding: From Interpretability to Real-World Applications*
2019 – 2023	**M.Sc. (cum laude), Tel Aviv University** Computer Science Advisor: *Dr. Hadar Averbuch-Elor* Thesis: *Learning Human-Human Interactions in Images with Weak Textual Supervision* GPA: 98 / 100
2012 – 2016	**B.Sc., Massachusetts Institute of Technology (MIT)** Linguistics and Mathematics (dual major). GPA: 4.9 / 5

Employment History

2025 – ongoing	**Research Analyst (Postdoctoral),** Carnegie Mellon University. Advisor: *Dr. Lori Levin* Developing machine learning methods for endangered language documentation.
2024	**Research Scientist Intern,** Meta. Developing 3D generative models using weakly-structured image collections.
2019 – 2023	**Data Science Lead and Lecturer,** Israel Tech Challenge. Designed syllabus, wrote, and delivered lectures on data science to industry professionals.
2019 – 2021	**NLP Data Scientist,** Pipl, Inc. Designed information extraction algorithms for unstructured textual web data.
2018 – 2019	**NLP Data Scientist,** Reverso-Softissimo. Designed NLP algorithms to automatically correct and enrich linguistic data.
2017 – 2018	**Software Developer,** K Dictionaries. Managed API for lexicographic data, and developed algorithms for data enrichment
2015 – 2016	**Software and Algorithm Developer,** Voiceitt. Prototyped speech recognition algorithms and integrated them into the company's API.
2016	**Algorithm Development Intern,** SECOM. Developed algorithms for improved facial recognition.
2012-2015	**Undergraduate Research in Cognitive Linguistics,** TedLab, MIT. Analyzed psycholinguistic survey data to study cognition and language.

Research Publications

* indicates equal contribution.

Peer-Reviewed Conference Papers

1. **Morris Alper**, David Novotny, Filippos Kokkinos, Hadar Averbuch-Elor, Tom Monnier. WildCAT3D: Appearance-Aware Multi-View Diffusion in the Wild. *NeurIPS*, 2025.

2. Rachel Mikulinsky*, **Morris Alper***, Shai Gordin, Enrique Jiménez, Yoram Cohen, Hadar Averbuch-Elor. ProtoSnap: Prototype Alignment For Cuneiform Signs. *ICLR*, 2025.

3. Keren Ganon*, **Morris Alper***, Rachel Mikulinsky, Hadar Averbuch-Elor. WAFFLE: Multimodal Floorplan Understanding in the Wild. *WACV*, 2025. *(Oral)*

4. **Morris Alper** and Hadar Averbuch-Elor. Emergent Visual-Semantic Hierarchies in Image-Text Representations. *Proceedings of the European Conference on Computer Vision (ECCV)*, 2024. *(Oral)*

5. Moran Yanuka, **Morris Alper**, Hadar Averbuch-Elor, Raja Giryes. ICC : Quantifying Image Caption Concreteness for Multimodal Dataset Curation. *ACL (Findings)*, 2024.

6. Chen Dudai*, **Morris Alper***, Hana Bezalel, Rana Hanocka, Itai Lang, and Hadar Averbuch-Elor. HaLo-NeRF: Learning Geometry-Guided Semantics for Exploring Unconstrained Photo Collections. *Proceedings of the Eurographics Conference (EG)*, 2024.

7. **Morris Alper** and Hadar Averbuch-Elor. Kiki or Bouba? Sound Symbolism in Vision-and-Language Models. *Advances in Neural Information Processing Systems (NeurIPS)*, 2023. *(Spotlight)*

8. **Morris Alper** and Hadar Averbuch-Elor. Learning Human-Human Interactions in Images from Weak Textual Supervision. *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV)*, 2023.

9. **Morris Alper***, Michael Fiman*, and Hadar Averbuch-Elor. Is BERT Blind? Exploring the Effect of Vision-and-Language Pretraining on Visual Language Understanding. *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023.

Workshop and Non-Peer-Reviewed Papers

1. **Morris Alper**, Samopriya Basu, Nathan Bennett, Ryan Kessler, S Verlaine Ravana, Wendy F. K'ah Skáahluwaa Todd. Towards Low-Resource Text-to-Speech Generation for Indigenous Pacific Northwest Languages: The Case of Haida Xaad Kíl. *International Conference on Salish and Neighboring Languages (ICSNL)*, 2025.

2. Shai Gordin, **Morris Alper**, Avital Romach, Luis Saenz Santos, Naama Yochai, Roey Lalazar. CuReD: Deep Learning Optical Character Recognition for Cuneiform Text Editions and Legacy Materials. *Proceedings of the 1st Workshop on Machine Learning for Ancient Languages (ML4AL)*, 2024.

3. **Morris Alper**. Auto-generating Bilingual Dictionaries: Results of the TIAD-2017 Shared Task Baseline Algorithm. *LDK Workshops*, 2017.

Preprints and Under Review

1. **Morris Alper***, Moran Yanuka*, Raja Giryes, Gašper Beguš. ConlangCrafter: Constructing Languages with a Multi-Hop LLM Pipeline. 2025.

2. Yakov Kolani, Maxim Melichov, Cobi Calev, **Morris Alper**. Phonikud: Hebrew Grapheme-to-Phoneme Conversion for Real-Time Text-to-Speech. 2025.

3. Shahaf Pruss*, **Morris Alper***, Hadar Averbuch-Elor. Dynamic Scene Understanding from Vision-Language Representations. 2025.

Teaching Experience

Fall 2025	**Human Language for Artificial Intelligence**, teaching assistant, Carnegie Mellon University.
Fall 2023	**Digital Signal Processing**, teaching assistant, Tel Aviv University.

Teaching Experience (continued)

2019 – 2023   **Data Science Lead and Lecturer**, Israel Tech Challenge.
● Designed syllabus spanning fundamentals (data analysis, machine learning basics) through advanced topics (deep learning, NLP, computer vision)
● Lectured on data science and machine learning to diverse industry professionals across multiple cohorts
● Mentored student capstone projects in technical implementation and communicating results
● Achieved strong student evaluations (consistently above 6.0 on 7-point scale)

Grants and Funding

Pending

2025   **NEH-BSF: Reading the Rocks: AI-powered Digital Editions and the Preservation of Endangered pre-Islamic Arabian Epigraphic Heritage**
Implementation Grant, Scholarly Editions and Scholarly Translation (NEH-BSF)
Role: Senior Computational Specialist (PI: Ahmad Al-Jallad)

Miscellaneous Experience

Invited Talks (Selected)

2025   **Old Words, New Words: ML for Ancient and Fictional Languages**. IBM Israel.

Understanding the Knowledge of Vision-Language Models . SC Lab Seminar, UC Berkeley.

2024   **Understanding the Knowledge of Vision-Language Models**. IMAGINE Lab Seminar, Ecole Nationale des Ponts et Chaussées.

2023   **What is Learned by Vision and Language Models**. School of Electrical and Computer Engineering, Ben Gurion University.

What is Learned by Vision and Language Models. Shevah Mofet High School Linguistics Club.

Is BERT Blind? Exploring the Effect of Vision-and-Language Pretraining on Visual Language Understanding. Vision Seminar, Hebrew University of Jerusalem.

"Deeplomatics": Deep learning for Automatic Analysis of Cuneiform Texts . First Meeting of the Digital Ancient Near Eastern Studies Network (DANES).

Industry Workshops (delivered through Israel Tech Challenge)

2021 – 2022   **NLP Workshop Series**. AT&T Israel.

2020   **Cutting-Edge NLP With Transformers and BERT.** PayPal Israel.

Presentations and Interviews

2024   ▶ IMVC 2024 presentation on "Kiki or Bouba?" NeurIPS 2023 paper

🔊 Radio interview for Kan Tarbut program on VLM sound symbolism research (46:30-60:00, Hebrew language)

Miscellaneous Experience (continued)

Awards and Achievements

2011	**International Linguistics Olympiad**, first place internationally (both individual and team rounds), best solution (problem 2), Zhurinsky Memorial Prize.
2009	**International Linguistics Olympiad**, honorable mention (individual round), first place in team round.
2008	**International Linguistics Olympiad**, tied for 6th place individual round (silver medal).

Peer Review Service

2025	SIGGRAPH, NeurIPS (Top Reviewer), ICLR, ACL ARR
2024	COLM, NeurIPS, ACML, ICLR

Languages

English (native), **Hebrew** (professional), **French** (upper intermediate)

References

Available upon request