Yanir Kleiman

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I am an experienced computer graphics researcher and developer.
I am currently a research engineer at Meta AI.
I completed my PhD at Tel Aviv University where I was a part of the Computer Graphics lab,
followed by a post-doc at Laboratoire d'Informatique (LIX) at École Polytechnique near Paris.

My research initially focused on shape analysis, shape and image similarity, segmentation and shape matching. In recent years I have worked mainly on 3D reconstruction and generative AI of 3D shapes.

I also have prior experience in VFX production.

Professional Experience

2020 - Now **Research Engineer, Meta**
In recent years I was a research engineer at FAIR / GenAI at Meta. Selected projects:

- Contributed to Llama 3 and 4 multi-modal post-training
- Meta 3D TextureGen project (joint first author)
- Meta 3D AssetGen
- Replay dataset: aligned multi-modal multi-view videos for 3D reconstruction (joint first author)

Technical leadership of 3D shapes dataset curation for research projects:

- Evaluation of datasets from external vendors
- Ingestion and conversion of shapes in various 3D formats
- Shape preprocessing and rendering setups
- PBR materials manipulation and verification

Previously, I was part of Spark AR, developing 3D studio software that artists use to create 3D effects for mobile phones and headsets.

- Incorporated real time location tracking simulation in Spark Studio
- Worked on simulated environments in Spark Studio

2019 - 2020 **Research Scientist, Shapes AI**
Shapes AI was an early stage startup company that developed solutions in the space of 3D shapes and video-based visual reasoning. I led the research efforts in the 3D domain, which include generative modeling, point clouds processing, and 3D search.

- Worked on generative modeling research.
- Developed a deep learning method to clean up noisy point clouds.
- Developed an end-to-end solution for generating thousands of textured shapes from a small set, which includes procedural modeling and texture generation.
- Worked on 3D shapes search where the input is an image or a 3D shape.

2018 - 2019 **Software Developer, DNEG**
DNEG is a visual effects company in London. I developed tools for the "on-set" department which is responsible of taking reference footage on the set of a show.

- Worked on tools for browsing massive sets of 100K+ images.
- Developed a deep learning method to detect color charts in images.
- Developed a deep learning method to remove noise artifacts from images.
- Developing in C++, Python, and MEL script language.
- Worked with Maya, Nuke, Alembic, libraw, OpenEXR, and other common tools of the VFX industry.

2016 - 2017 **Post-doc Researcher, Laboratoire d'Informatique**, École Polytechnique, France.
Part of a computer graphics group led by Maks Ovsjanikov.

| 2011 - 2016 | **PhD Student, Computer Science**, Tel Aviv University, Israel. |
| | Computer graphics lab, under the supervision of Prof. Daniel Cohen-Or. |

| 2010 | **Lighting and Rendering TD / Compositor, Crew 972** |
| | Worked on "The Looney Tunes Show" for Warner Bros. |

- Lighting and set dressing shots in Maya.
- Creating visual effects (dust, smoke) using dynamics and MEL scripting.
- Creating render layers and monitoring the render process on a render farm.
- Final compositing of shots using Nuke.

2009	**3D Artist, Gravity Israel Visual Effects**
	Worked mostly on shading, lighting, and render passes.
	Additional work included modeling and scripting.

2009	**Freelance Effects Artist, "Deus".**
	Created visual effects for several shots on the show from start to finish.
	Tracking, modeling, simulation, animation, rendering and compositing.

| 2008 - 2009 | **3D Animation and Visual Effects Diploma**, Vancouver Film School, Canada. |
| | Visual Effects specialization, graduated with honors. |

| 2008 | **Algorithms Developer, MutualArt Inc.** |
| | Developed and implemented automated text categorization and linking algorithms with C# and SQL Server. |

| 2005 - 2007 | **Development Team Leader, Amobee Media Systems Ltd.** |
| | Led a team that developed a web based back-office system that enables advertisers to manage their campaigns and creative ads. |

- .NET infrastructures (ASP.NET) and SQL Server development.
- Management, task planning, recruiting and training.
- Requirements specification, GUI design (flow and graphic design).
- Java development.

Expertise

ML / AI	Exeprience with both diffusion models and LLMs
3D Geometry	Working with meshes, point clouds, and implicit 3D representations (NeRF / SDF)
3D Software	Deep knowledge of the content production pipeline and Blender and Maya scripting

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Academics

| 2016 | **PhD in Computer Science**, Tel Aviv University, Israel. |
| | *Dissertation:* Semantic Similarity and Correspondence of 3D Shapes and Images. |

| 2005 | **M.Sc. in Computer Science**, Tel Aviv Academic College, Israel |
| | Graduated with honors. |

| 2000 | **B.Sc. in Math and Computer Science**, Tel Aviv University, Israel |

Publications

*Joint first authors marked with *

2024	**The llama 3 herd of models**
	Abhimanyu Dubey et al. (500+ authors)
	arXiv, 2024

2024	**Meta 3D Gen (technical report)** *Raphael Bensadoun, *Tom Monnier, *Yanir Kleiman, Filippos Kokkinos, Yawar Siddiqui, Mahendra Kariya, Omri Harosh, Roman Shapovalov, Benjamin Graham, Emilien Garreau, Animesh Karnewar, Ang Cao, Idan Azuri, Iurii Makarov, Eric-Tuan Le, Antoine Toisoul, David Novotny, Oran Gafni, Natalia Neverova, Andrea Vedaldi Meta Research, 2024
2024	**Meta 3D AssetGen: Text-to-mesh generation with high-quality geometry, texture, and pbr materials** Yawar Siddiqui, Tom Monnier, Filippos Kokkinos, Mahendra Kariya, Yanir Kleiman, Emilien Garreau, Oran Gafni, Natalia Neverova, Andrea Vedaldi, Roman Shapovalov, David Novotny arXiv, 2024
2024	**Meta 3D TextureGen: fast and consistent texture generation for 3d objects** *Raphael Bensadoun, *Yanir Kleiman, Idan Azuri, Omri Harosh, Andrea Vedaldi, Natalia Neverova, Oran Gafni arXiv, 2024
2023	**Replay: Multi-modal multi-view acted videos for casual holography** *Roman Shapovalov, *Yanir Kleiman, *Ignacio Rocco, David Novotny, Andrea Vedaldi, Changan Chen, Filippos Kokkinos, Ben Graham, Natalia Neverova ICCV, 2023
2019	**Boosting VFX Production with Deep Learning** Yanir Kleiman, Simon Pabst, Patrick Nagle ACM SIGGRAPH Talks, 2019
2018	**PCPNet: Learning Local Shape Properties from Raw Point Clouds** *Paul Guerrero, *Yanir Kleiman, Maks Ovsjanikov, Niloy J. Mitra Computer Graphics Forum (Proceedings of Eurographics), 2018
2018	**Group optimization for multi-attribute visual embedding** Qiong Zeng, Wenzheng Chen, Zhuo Han, Mingyi Shi, Yanir Kleiman, Daniel Cohen-Or, Baoquan Chen, Yangyan Li Visual Infromatics, 2018
2018	**Dance to the beat: Synchronizing motion to audio** Rachele Bellini, Yanir Kleiman, Daniel Cohen-Or Computational Visual Media, 2018
2018	**Robust Structure-Based Shape Correspondence** Yanir Kleiman, Maks Ovsjanikov Computer Graphics Forum, 2018
2017	**Region-Based Correspondence Between 3D Shapes via Spatially Smooth Biclustering** Matteo Denitto, Simone Melzi, Manuele Bicego, Umberto Castellani, Alessandro Farinelli, Mario A. T. Figueiredo, Yanir Kleiman, Maks Ovsjanikov ICCV 2017
2016	**Semantic Similarity and Correspondence of 3D Shapes and Images** Yanir Kleiman PhD Dissertation
2016	**Time-varying Weathering in Texture Space** Rachele Bellini, Yanir Kleiman, Daniel Cohen-Or. ACM Transactions on Graphics (Proceedings of SIGGRAPH), 2016
2016	**Toward Semantic Image Similarity from Crowdsourced Clustering** Yanir Kleiman, George Goldberg, Yael Amsterdamer, Daniel Cohen-Or. The Visual Computer (Proceedings of CGI), 2016

2015	**SHED: Shape Edit Distance for Fine-grained Shape Similarity** Yanir Kleiman, Oliver van Kaick, Olga Sorkine-Hornung, Daniel Cohen-Or. ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia), 2015
2015	**DynamicMaps: Similarity-based Browsing through a Massive Set of Images** Yanir Kleiman, Dov Danon, Jasmin Felberbaum, Joel Lanir, Daniel Cohen-Or. Proceedings of ACM Conference on Human Factors in Computing Systems, 2015
2014	**Shape Segmentation by Approximate Convexity Analysis** Oliver van Kaick, Noa Fish, Yanir Kleiman, Shmuel Asafi, Daniel Cohen-Or. ACM Transactions on Grpahics (TOG), 2014
2013	**Dynamic Maps for Exploring and Browsing Shapes** Yanir Kleiman, Noa Fish, Joel Lanir, Daniel Cohen-Or. Computer Graphics Forum (Proceedings of SGP), 2013
2011	**Unsupervised co-segmentation of a set of shapes via descriptor-space spectral clustering** Oana Sidi, Oliver van Kaick, Yanir Kleiman, Hao Zhang, Daniel Cohen-Or. ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia), 2011
2007	**Paging with connections: FIFO strikes again** Leah Epstein, Yanir Kleiman, Jiri Sgall, Rob van Stee. Theoretical computer science, 2007

Public Talks and Academic Visits

2017	**Invited Talk,** Google Zurich, Switzerland.
2016	**Invited Talk,** Hebrew University of Jerusalem, Israel.
2016	**CGI 2016** Toward Semantic Image Similarity from Crowdsourced Clustering.
2016	**PhD Dissertation Public Lecture,** Tel Aviv University, Israel.
2015	**Visiting Researcher,** Shandong University, China.
2015	**SIGGRAPH Asia 2015** SHED: Shape Edit Distance for Fine-grained Shape Similarity.
2015	**Visiting Researcher,** École Polytechnique, France.
2013	**Invited Talk,** Max Planck Institute for Informatics, Germany.
2013	**Visiting Researcher,** ETH Zurich, Switzerland.
2013	**SGP 2013** Dynamic Maps for Exploring and Browsing Shapes.

Awards and Fellowships

2016-2017	**Chateaubriand Fellowship for Postdoctoral Research**
2014-2015	**Google Focused Research Award** I was partly funded by this grant during my PhD studies.
2010	**Animex Visual Effects Award** Runner up for Best Visual Effects in Animex 2010 Festival.
2005	**Excellence Scholarship - Tel Aviv Academic College** Awarded for excellence during my M.Sc. studies.