Yanir Kleiman

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I am a currently a research scientist at Shapes 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 focused mainly on deep learning techniques and their application to 3D models represented by point clouds and polygonal meshes.

I have over 10 years of prior experience as a software engineer and in VFX production.

Professional Experience

2019 - 2020 **Research Scientist, Shapes AI**
Shapes AI is an early stage startup company that develops solutions in the space of 3D shapes and video-based visual reasoning. I lead 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 lead of 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".**
"Deus" is a sci-fi TV show in Israel.
I 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.**
Lead 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.

2004 - 2005 **Development Team Leader, IDF.**
The team developed .NET systems and supported legacy Microsoft DNA systems.

2000 - 2004 **Senior Infrastructure Programmer, IDF.**

1996 - 2000 **Part Time VB and ASP Programmer, NTR Visual Technologies Ltd.**

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

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.

Reviewer

Pattern Recognition (2020)
SIGGRAPH (2014, 2015, 2016)
SIGGRAPH ASIA (2014, 2015)
Eurographics (2015, 2016, 2017)
Computer Graphics Forum (2014, 2015)
The Visual Computer (2016, 2017)
Transactions on Visualizations and Computer Graphics (2017, 2018)
Graphical Models (2015)
Computer and Graphics (2013)