

Lior Shapira



Computer Graphics PhD candidate with extensive industry experience

Computer Graphics Lab, School of Computer Science
Faculty of Exact Sciences, Tel-Aviv University, Israel
liors@post.tau.ac.il lior.shapira@gmail.com
+972-3-6406455 (office) +972-523-961754 (mobile)
<http://www.cs.tau.ac.il/~liors> <http://il.linkedin.com/in/liorsh>

Education

Ph.D. in Computer Science, Tel Aviv University *Oct. 2005 – Jul. 2010 (expected)*
Thesis Advisors: Professor [Daniel Cohen-Or](#) (TAU)
and Dr. [Ariel Shamir](#) (IDC)

M.Sc. in Computer Science, Tel Aviv University *Oct. 2003 – Sep. 2005*
Thesis Advisors: Professor [Daniel Cohen-Or](#) (TAU)
and Dr. [Ariel Shamir](#) (IDC)
Thesis submitted: Mesh Feature Analysis Using geodesic Mean-shift
Graduated with honors

B.Sc. in Computer Science and Mathematics, *Oct. 1997 – Oct. 2000*
Tel Aviv University
Graduated with honors (computer science)

Research

Computer graphics, Image processing and Computer Vision. Recently worked on visual perception, understanding and changing the color characteristics of images.

Graduate Researcher, Computer Graphics Lab, TAU *Oct. 2003 – present*
Advisors: Professor [Daniel Cohen-Or](#) (TAU) and Dr. [Ariel Shamir](#) (IDC)

- Adapted the Mean-shift clustering algorithm to manifold surfaces (meshes), using a local parameterization scheme ([project page](#)).
- Developed the Shape-diameter function (SDF), a scalar function defined on a surface mesh, which establishes a connection between the surface and the local shape diameter. The SDF was then utilized for shape and part retrieval, model segmentation and skeleton extraction ([project page](#)).
- Developed a navigation-based interface for altering the colors in images. The colors of an image are modeled using a Gaussian Mixture Model. The space of possible color variants is then sampled and presented to the user in a gallery-like interface. Using simple navigation paradigms, the user is able to achieve a wide variety of effects ([project page](#)).

Summer Intern, Adobe Technology Labs, Newton MA *Jul.-Oct. 2008*
Advisor: Dr. [Shai Avidan](#)

- Developed a clustering algorithm intended for high-dimensional large-scale data sets. Applications in image retrieval, patch matching, texture classification etc. By combining a robust depth function (the Tukey depth) with locality-sensitive hashing, we developed Median-Shift, a mode-detection algorithm.
- The algorithm has been registered as a patent (pending) and a paper has been presented at ICCV 2009 ([project page](#)).

Publications:

See <http://www.cs.tau.ac.il/~liors/publications> for a full bibliography and a list of talks.

2009

- ❖ **Mode-detection via Median-Shift**
Lior Shapira, Shai Avidan, Ariel Shamir. ([Project page](#))
Proceedings of ICCV 2009.
- ❖ **Image Appearance Exploration by Model-Based Navigation**
Lior Shapira, Ariel Shamir, Daniel Cohen-Or. ([Project page](#))
Proceedings of Eurographics 2009 (**2nd best paper award**)
- ❖ **Principal-channels for One-sided Object Cutout**
Lior Gavish, Lior Shapira, Lior Wolf, Daniel Cohen-Or. ([Project page](#))
Proceedings of IEEE CAD/Graphics 2009
Extended version to appear in *The Visual Computer* (Special issue).

2008

- ❖ **Part Analogies in Sets of Objects**
Shy Shalom, Lior Shapira, Ariel Shamir, Daniel Cohen-Or. ([Project page](#))
Proceedings of *Eurographics Workshop on 3D Object Retrieval* 2008

2007

- ❖ **Consistent Mesh Partitioning and Skeletonization using the Shape Diameter Function**
Lior Shapira, Ariel Shamir and Daniel Cohen-Or. ([Project page](#))
Proceedings of Israel Korea Bi-National Conference on Computer Graphics 2007
The Visual Computer Vol. 24 #4 (Special IK Issue).

Older

- ❖ **Mesh analysis using geodesic mean shift**
Lior Shapira, Ariel Shamir and Daniel Cohen-Or. ([Project page](#))
The Visual Computer Vol. 22 #2, February 2006, pages 99-108.
- ❖ **Local Geodesic Parameterization: An Ant's Perspective**
Lior Shapira, Ariel Shamir. ([Project page](#))
Mathematical Foundations of Scientific Visualization, Computer Graphics, and Massive Data Exploration, Springer, 2009.
- ❖ **Geodesic mean shift**
Lior Shapira, Ariel Shamir, Daniel Cohen-Or, and Ronnie Goldenthal ([Project page](#))
Proceedings of 5th Korea-Israel Bi-National Conference on Geometric Modeling and Computer Graphics, Seoul, Korea, October 2004, pages 51-56.

Work Experience:

Course Instructor, John Bryce IT Education Center *Apr. 2009 - Present*
Teaching industry courses in [advanced computer graphics](#) (OpenGL, GLSL etc.).

Lecturer, School of Computer Science, TAU *Jan. 2006 - Present*
Teaching courses in object oriented software development (Java), Data structures and algorithms, and computer graphics (for the full listing [see here](#)).

Software Engineer, CG group, SGI *Apr. 2004 - Dec. 2005*
Worked at the SGI graphics group, located in Herzliya Israel. Integrated image compression algorithms, used for low-bandwidth transmission of 3D content (C++ mostly).

Software Team Leader, BackWeb Technologies *Jan.2001 - Jan. 2004*
Managed the client-side software team, consisting of four engineers. Developed code (C++/Java) for Backweb's Proactive Portal product. The product gave end-users complete offline access to their enterprise portal.

Software Team Leader, eCommony Inc. *Feb. 2000 - Jan. 2001*
Managed server-side software team, consisting of four engineers. Built a peer to peer payment system (similar to PayPal). Implemented code for processing a large volume of financial transactions in J2EE (Java 2 enterprise environment).

Software Engineer, MSK Electrical Engineering *Sep. 1997 - Dec. 1999*
Developed virtual control-room software (in Delphi), which replaced physical control boards in factories. The product included a CAD like editor, for building the virtual panels, and a real-time module for monitoring and controlling the connected hardware components.

Software Engineer, Israeli Air-force *Sep. 1995 - Sep. 1997*
Developed modules for real-time aircraft simulation software (In Fortran and C/C++).

Software Engineer, [Magal Security Systems](#) *Sep. 1994 - Aug. 1995*
Worked on site security monitoring software (C/C++), which accompanies Magal's integrated security solutions.

References will be provided on demand

Personal:

Citizenship: Israeli

Marital status: Married with kids

Languages: English and Hebrew (both native)