Adobe Systems Inc.
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Shmuel (Shai) Avidan

Education

1994 – 1999 The Hebrew University Jerusalem, Israel

Ph.D. in Computer Science, Summa cum Laude

- Thesis Advisor: Prof. Amnon Shashua
- Thesis Title: From Static to Dynamic Structure From Motion

1989 - 1993 Bar-Ilan University Ramat-Gan, Israel

B.Sc. in Computer Science and Mathematics, with honors

Professional experience

2007 - Adobe Systems, Inc.

Newton, MA, USA

Senior Research Scientist

- Areas of research: Computer Vision, Computer Graphics, Machine Learning and Privacy-preserving data mining

2004 - 2007 Mitsubishi Electric Research Labs (MERL)

Cambridge, MA, USA

Research Scientist

- Areas of research: Computer Vision, Computer Graphics, Machine Learning and Privacy-preserving data mining

2001 - 2003 Interdisciplinary Center (IDC) Herzelya, Israel

Faculty Member

- Areas of interest: Computer Vision (3D reconstruction, video processing) and Machine Learning.
- Courses taught: Algorithms, Data Structures, Machine Learning.

2000 - 2003 MobilEye Vision Technologies Jerusalem, Israel

Algorithms Group Manager

- Responsible for a group of 5 researchers developing a state-of-the-art real-time computer vision system for the detection and tracking of vehicles from a video camera.

1999 - 2000 Microsoft Redmond, WA, USA

Post-doc Researcher

(Hosts: P. Anandan, Rick Szeliski)

- Part of a team that developed a system for modeling large environments from images and video.

Summer 1997 MIT Cambridge, MA, USA

Summer Student

(Host: Prof. Tommy Poggio)

- Working on image-based rendering.

Summer 1996 MIT Cambridge, MA, USA

Summer Student

(Host: Prof. Tommy Poggio)

- Working on image-based rendering.

1989 - 1999 Advanced Technologies LTD Ramat-Gan, Israel

Researcher, Chief Programmer & Software Engineer

- Programmer, chief programmer and researcher in the field of Geographical Information Systems (GIS).

Academic Service

1. Area Chair – CVPR 2008
2. Area Chair - ICCV 2007
3. Program Chair – Internet Vision workshop, in conjunction with CVPR 2008.
4. Program Committee member - Workshop on Privacy Research in Vision, in conjunction with CVPR 2006.
5. Program Committee member - Workshop on Embedded Computer Vision, in conjunction with CVPR 2005.
6. NSF Panelist – Panel on Computer Vision, 2007
7. Regular reviewer for CVPR, ICCV, ECCV, TPAMI, SIGGRAPH

Ph.D. students supervised

1. Moshe Butman, Bar-Ilan University, Israel (co-supervised with Prof. Amihood Amir)

Ph.D. thesis-committee external member

1. Navneet Dalal, INRIA, France (Graduated 2006)
2. Qiang Zhu, UC Santa Barbara, CA, USA (Graduated 2007)

Journal Publications

Student co-author denoted with [(s)]

1. M. Rubinstein[(s)], A. Shamir and S. Avidan. **Improved Seam Carving for Video Retargeting**. Accepted to SIGGRAPH, Los Angeles, CA, 2008.

2. E. Hsu[(s)], T. Mertens, S. Paris, S. Avidan and F. Durand. **Albedo Voting for White Balance under Mixed Lighting**. Accepted to SIGGRAPH, Los Angeles, CA, 2008.

3. S. Avidan and A. Shamir. **Seam Carving for Content-Aware Image Resizing.** SIGGRAPH, San-Diego, CA, 2007.

4. N. Joshi[(s)], W. Matusik, S. Avidan, H. Pfister and W. T. Freeman. **Exploring Defocus Matting: Non-Parametric Acceleration, Super-Resolution, and Off-Center Matting.** Special Issue-Computational Photography of IEEE Journal on Computer Graphics and Applications, 2007.

5. S. Avidan. **Ensemble Tracking**. IEEE Transactions on Patterns Analysis and Machine Intelligence (PAMI), Vol. 29(2) pp. 261-271, 2007.

6. S. Avidan, Y. Moses and Y. Moses. **Centralized and Distributed Multi-view Correspondence.** *International Journal of Computer Vision (IJCV),* Vol. 71(1) pp 49-69, 2007.

7. N. Joshi[(s)], W. Matusik and S. Avidan. **Natural Video Matting using Camera Arrays.** SIGGRAPH, Boston, MA, 2006.

8. S. Avidan. **Support Vector Tracking.** *IEEE Transactions on Patterns Analysis and Machine Intelligence (PAMI),* Vol. 26(8) pp. 1064-1072, 2004.

9. S. Avidan and A. Shashua. **Threading Fundamental Matrices.** *IEEE Transactions on Pattern Analysis and Machine Intelligence* (PAMI), Vol. 23(1), pp. 73--77, 2001.

10. S. Avidan and A. Shashua. **Trajectory Triangulation: 3D Reconstruction of Moving Points from a Monocular Image Sequence.** *IEEE Transactions on Pattern Analysis and Machine Intelligence* (PAMI), Vol. 22(4), pp. 348--357, 2000**.**

11. S. Avidan and A. Shashua. **Novel View Synthesis by Cascading Trilinear Tensors***. IEEE Transactions on Visualization and Computer Graphics* (TVCG), 4(4), 1998.

Major Conferences publications (refereed, acceptance rate bellow 25%)

Student co-author denoted with [(s)]

1. E. Zadicario[(s)], S. Avidan, A. Shmueli and D. Cohen-Or. **Boundary Snapping for Robust Image Cutouts**. To appear in *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2008.

2. T. S. Cho[(s)], M. Butman[(s)], S. Avidan and W. T. Freeman. **A patch transform framework for image editing applications.** To appear in *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2008.

3. N. Joshi[(s)], S. Avidan, W. Matusik and D. Kriegman. **Synthetic Aperture Tracking: Tracking through Occlusions.** In *International Conference on Computer Vision (ICCV),* Rio de Janeiro, Brazil, 2007.

4. B. Moghaddam, Y. Weiss and S. Avidan. **Fast Pixel/Part Selection with Sparse Eigenvectors.** In *International Conference on Computer Vision (ICCV),* Rio de Janeiro, Brazil, 2007.

5. N. Morris[(s)], S. Avidan, W. Matusik and H. Pfister. Statistics of Infrared Images. To appear in *IEEE Conference on Computer Vision and Pattern Recognition (CVPR),* Minneapolis, MN, 2007.

6. S. Avidan and M. Butman[(s)]. **Efficient Methods for Privacy Preserving Classification**. Advances in Neural Information Systems (*NIPS 18*), 2006.

7. B. Moghaddam, Y. Weiss and S. Avidan. **Generalized Spectral Bounds for Sparse LDA.** In *International Conference on Machine Learning (ICML),* Pittsburgh, PA, 2006.

8. Q. Zhu[(s)], S. Avidan, M. Ye and K-T Cheng. **Fast human detection using a cascade of Histograms of Oriented Gradients.** In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR),* pp 1491-1498, NY, NY, 2006.

9. S. Avidan and M. Butman[(s)]. **Blind Vision.** In *European Conference on Computer Vision (ECCV),* pp 1-13, Graz, Austria, 2006.

10. S. Avidan. **SpatialBoost: Adding Spatial Reasoning to AdaBoost.** In *European Conference on Computer Vision (ECCV),* pp 386-396, Graz, Austria, 2006.

11. B. Moghaddam, Y. Weiss and S. Avidan. **Spectral Bounds for Sparse PCA: Exact and Greedy Algorithm.** In *Advances in Neural Information Systems (NIPS 17), 2005.*

12. Q. Zhu[(s)], S. Avidan and K-T Cheng. **Learning a Sparse, Corner-based Representation for Time-varying Background Modeling.** In *International Conference on Computer Vision (ICCV),* pp 678-685, Beijing, China, 2005.

13. S. Avidan. **Ensemble Tracking.** In IEEE Conference on Computer Vision and Pattern Recognition (CVPR), pp 494-501, San Diego, CA, 2005.

14. S. Avidan and M. Butman[(s)]. **The power of feature clustering: An application to object detection.** In *Advances in Neural Information Systems (NIPS 16), 2004.*

15. S. Avidan. **Joint Feature-Basis Subset Selection.** In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR),* pp 283-290*,* Washington D.C. 2004.

16. P. Reisman, O. Mano, S. Avidan and A. Shashua. **Crowd Detection in video sequences.** *In IEEE Inteligent Vehicles Symposium (*IV*),* Parma, Italy, 2004.

17. S. Avidan, Y. Moses and Y. Moses. **Probabilistic Multi-view Correspondence in a Distributed Setting.** *In European Conference on Computer Vision (ECCV),* pp 428-441, Prague, Czech Republic, 2004.

18. S. Avidan. **Subset Selection for Efficient SVM Tracking.** In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR),* pp 85-94*,* Madison, WI, 2003.

19. *S. Avidan.* **EigenSegments: A Spatio-Temporal Decomposition of an Ensemble of Images.** *In European Conference on Computer Vision (ECCV),* pp 747-758*,* Copenhagen, Denmark, 2002.

20. A. Shashua, A. Levin and S. Avidan. **Manifold Pursuit: A New Approach to Appearance Based Recognition.** In *Proceedings of the International Conference on Pattern Recognition* (*ICPR*), pp 590-594, Quebec City, Canada, 2002.

21. S. Avidan. **Support Vector Tracking.** In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR),* pp 184-191 Hawaii, USA, 2001.

22. R. Szeliski, S. Avidan and P. Anandan. **Layer Extraction from multiple images containing reflections and transparency.** In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR),* pp 1246-1253, Hilton Head Island, 2000.

23. P. Anandan and S. Avidan. **Integrating local affine into global projective images in the joint image space.** *In European Conference on Computer Vision (ECCV),* pp 907-921, Dublin, Ireland, 2000.

24. A. Shashua and S. Avidan. **On the Reprojection of 3D and 2D Scenes without explicit model selection.** *In European Conference on Computer Vision (ECCV),* pp 936-949*,* Dublin, Ireland, 2000.

25. A. Shashua, S. Avidan and M. Werman. **Trajectory Triangulation over Conic Sections.** *International Conference on Computer Vision (ICCV),* pp 330-336*,* Kerkyra, Corfu, Greece*, 1999.*

26. S. Avidan and A. Shashua. **Trajectory Triangulation of Lines: Reconstruction of a 3D point Moving along a Line from a Monocular Image Sequence.** *IEEE Conf. on Computer Vision and Pattern Recognition (CVPR),* pp 2062-2066, Ft. Collins, CO, 1999**.**

27. S. Avidan and A. Shashua. **Threading Fundamental Matrices**. *In European Conference on Computer Vision (ECCV),* pp 124-140*,* Frieburg, Germany, 1998.

28. S. Avidan, T. Evgeniou, A. Shashua and T. Poggio. **Image-Based View Synthesis by Combining Trilinear Tensors and Learning Techniques.** *In* ACM Symposium on Virtual Reality Software and Technology*,* pp 103-110, Lausanne, Switzerland, 1997.

29. S. Avidan and A. Shashua. **Novel View Synthesis in Tensor Space**. *In IEEE Conference on Computer Vision and Pattern Recognition (CVPR),* pp 1034-1040*,* San Juan, Puerto Rico,1997.

30. *B. Rousso, S. Avidan, A. Shashua and S. Peleg.* **Robust Recovery of Camera Rotation from Three Frames**. *In IEEE Conference on Computer Vision and Pattern Recognition (CVPR),* pp 796-802*,* San-Francisco, CA, 1996.

31. *A. Shashua and S. Avidan.* **The Rank4 Constraint In Multiple View Geometry.** *In European Conference on Computer Vision (ECCV),* pp 196-206, Cambridge, UK, 1996.

Book Chapters

1. S. Avidan and A. Shashua. **Tensor Embedding of the Fundamental Matrix**. In Post-ECCV SMILE Workshop, June 1998, Frieburg, Germany. Springer LNCS series, Vol. 1506

Other Publications

1. S. Avidan and A. Shashua. **Tensorial Transfer: On the Representation of $N>3$ Views of a 3D Scene**. In Proc. of the ARPA Image Understanding Workshop, Palm Springs, Feb. 1996.

Personal Information:

Date of Birth	July 8, 1968.
Marital Status	Married with three children.
Citizenship	Israeli