

# Margarita Osadchy

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## EDUCATION

- 1998 - 2002    **UNIVERSITY OF HAIFA**    **Haifa, Israel**  
**PhD** in Mathematics and Computer Science, Summa Cum Laude  
Thesis title: "Anti-Faces: a Novel Method for Detecting Images and Events"  
Advisor Dr. Daniel Keren.
- 1994 - 1997    **UNIVERSITY OF HAIFA**    **Haifa, Israel**  
**Master** in Mathematics and Computer Science, Cum Laude  
Thesis title: "Using Cross-Channel Correlation to Restore Multispectral Images"  
Advisor Dr. Daniel Keren.
- 1992 - 1994    **UNIVERSITY OF HAIFA**    **Haifa, Israel**  
**BA** in Mathematics and Computer Science

## PROFESSIONAL EXPERIENCE

2005 – Current    CS Department, University of Haifa

### Lecturer

2004 – 2005    CS Department, Technion

### VATAT Postdoctoral Fellow

- Development and application of learning methods of object recognition and categorization.

2001 – 2004    NEC Labs America Princeton, NJ

### Postdoctoral Scientist

- Designed a real-time system for simultaneous pose invariant face detection and facial pose estimation using energy-based models.

- Designed new methods for recognition of objects with different materials properties such as matte, specular, transparent and combinations of these under complex illumination.
- Conducted research in illumination insensitive image comparison.
- Worked on 3D recovery/modeling and image based rendering.

1998 – 2001            Biosense Webster a J&J company, Haifa, Israel

**Scientist**

- Algorithm development and applications for registration between Biosense magnetic location system and various image representations (Fluoroscopy, MRI, Ultrasound).
- Multi-sensor fusion.
- 3D reconstruction from 2D fluoroscopic images.

1995 – 1998            Biosense Webster a J&J company, Haifa, Israel

**Senior Software Engineer**

- Vital part in development of Biosense major application projects as senior software engineer and algorithm developer.
- Conducted research in ECG signal processing, mechanical stress analysis, 3-D signal propagation analysis.

1994 – 1995            Technion Cardiovascular Research Group, Israel

**Research Assistant**

- Conducted research in ECG signal processing
- Worked on development of a model of electrical behavior of cardiac tissue.
- Developed a system for integration of continuous video signal and 3D location of the CCD camera for 3D scene reconstruction.

1993 – 1994            Computer Center Haifa University, Israel

**Programming and Computer Consultant**

**HONORS AND AWARDS**

- Nominated for the TR 100, Technology Review list 2004.
- VATAT Postdoctoral Fellowship 2004
- PhD Summa Cum Laude.
- Winner of the 1997 Optowitz Foundation excellence award for MSc.

- Best MSc. Thesis in Mathematics and Computer Sciences in 1997 Haifa University.

## RESEARCH GRANTS

Israeli Ministry of Industry and Trade (MAGNET program), Suspected Objects Detection consortium.

**Project:** Detection of Concealed Hazardous Objects in Image Sequences.

In collaboration with Prof. M.Lindenbaum from the Technion.

Total amount of 300,000 NIS for the first year (for 2-3 years).

## PROFESSIONAL ACTIVITIES

Reviewer of IEEE Transactions on Pattern Analysis and Machine Intelligence, Computer Vision and Image Understanding, Computer Vision and Pattern Recognition, International Conference on Pattern Recognition.

## REFERRED JOURNAL PUBLICATIONS

### Published:

- M. Osadchy and D. Keren. "Efficient Detection under Varying Illumination Conditions and Image Plane Rotations", *Computer Vision and Image Understanding*, Volume 93, Issue 3, March 2004, pp 245-259
- M. Osadchy and D. Keren, "A Rejection-Based Method for Event Detection in Video," *IEEE Trans. on circuits and systems for video technology*, Volume: 14, Issue: 4, April 2004, pp. 534- 541.
- D. Keren M. Osadchy and C. Gotsman. "Anti-Faces: A novel, fast method for image detection," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, No. 7, July 2001, pp. 747-761.
- D. Keren and M. Osadchy "Restoring subsampled color images," *Machine Vision and Applications*, vol. 11, issue 4, 1999, pp. 197-202.

### Submitted:

- M. Osadchy, D.W. Jacobs, R. Ramamoorthi, D. Tucker. "Using specularities for recognition and pose recovery", *IEEE Transactions on Pattern Analysis and Machine Intelligence*, submitted, 2005.
- M. Osadchy, M. Lindenbaum, D.W. Jacobs. "Surface Dependent Representations for Illumination Insensitive Image Comparison" *IEEE*

*Transactions on Pattern Analysis and Machine Intelligence*, submitted, 2005.

- M. Osadchy, Y. LeCun, M. Miller, “Synergistic Face Detection and Pose Estimation with Energy-Based Models”, *Journal of Machine Learning Research*, submitted, 2005.

## **REFERRED CONFERENCE PROCEEDINGS**

- M. Osadchy, D.W. Jacobs, M. Lindenbaum, “On the Equivalence of Common Approaches to Lighting Insensitive Recognition, to appear in *IEEE International Conference on Computer Vision (ICCV)* 2005.
- M. Osadchy, M. Miller, and Y. LeCun “Synergistic Face Detection and Pose Estimation with Energy-Based Models”, *Advances in Neural Information Processing Systems (NIPS)* 2004.
- M. Osadchy, M. Lindenbaum, D.W. Jacobs “Whitening for photometric comparison of smooth surfaces,” *European Conference on Computer Vision (ECCV)* 2004.
- M. Osadchy, D.W. Jacobs, R. Ramamoorthi, “Using specularities for recognition,” *IEEE International Conference on Computer Vision (ICCV)*, 2003, pp.1512-1519
- M. Osadchy, D. Keren and Y. Gal. “Anti-Sequences: Event detection by frame stacking,” *IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)* 2001, (II:46-51).
- M. Osadchy and D. Keren. “Image Detection under varying illumination and pose,” *IEEE International Conference on Computer Vision (ICCV)*, 2001 (II: 668-673).
- D. Keren, M.Osadchy and C. Gotsman. “Anti-Faces for detection,” *Proc. of European Conference on Computer Vision (ECCV)*, June 2000.

## **WORKSHOPS**

- M. Osadchy, M. Miller, Y. LeCun, “Synergistic Face Detection and Pose Estimation”, *Machine Learning Workshop*, Snowbird 2004.
- M. Osadchy, M. Lindenbaum, D.W. Jacobs “Whitening for photometric comparison of smooth surfaces,” *Int'l Workshop on Statistical and Computational Theories of Vision*, 2003.

## **PATENTS**

- M. Osadchy and D. Reinfeld. "Method and apparatus for intracardially surveying conditions of a chamber of a heart," US patent No. 6385476.
- M. Osadchy and D. Reinfeld "Method and apparatus for mapping a chamber of a heart," patent No. 6368285.

## **INVITED TALKS**

- Int'l Object Recognition Workshop, Sicily 2004
- CSAIL, MIT 2004
- TTI Chicago 2004
- SIGGRAPH Israel meeting 2003
- Weizmann Institute, Israel 2003
- Tel-Aviv University, Israel 2003
- Technion, Israel 2003
- Rutgers University 2003
- Department of Brain and Cognitive Sciences, MIT 2002
- The Robotic Institute, CMU 2002