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CURRICULUM VITAE
(March 1, 2010)

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1. Personal:

Name: Konstantinos George Derpanis

Date of Birth: August 15, 1975.

Citizenship: Canadian (born), Greek/European

Languages: English (native), Greek (fluent)

University Address: Department of Computer Science and Engineering, and
                      Center for Vision Research
                      York University
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2. Research Interests

*Computer Vision***:** motion analysis, human computer interaction, recognition of human gestures

3. Education

York University, Computer Science Ph.D., 2003 – present.
        Advisors: Richard Wildes
York University, Computer Science M.Sc., 2001 – 2003.
        Thesis: *Vision Based Gesture Recognition within a Linguistics Framework*
        Advisors: John Tsotsos and Richard Wildes
        Date: May 2003.
University of Toronto, Computer Science Honours B.Sc., 1994-2000.
University of Toronto, Mathematics Minor, 1994-2000.

4. Research Experience

Technical Staff, Sarnoff Corporation (Princeton, New Jersey), June 2005 – September 2005
        (internship).
Supervisors: Peng Chang and Jayan Eledath
Project Goal: Apply computer vision technologies to improve car safety. One main project

is to develop a real-time stereo vision based collision sensing system, which detects imminent and unavoidable collisions with other cars.

Personal Role: Conducted vision-based research on motion estimation from real-time stereo cameras.

Research Assistant, York University, 2001-2004.
 Supervisors: John Tsotsos and Richard Wildes
 Project Title: GestureCam
 Project Goal: The development of a gesture-based control language for distance learning applications, used by speaker and audience, and recognizable by a computer system, to enable multiple sites to benefit from a central lecturer and the active participation of multiple audiences without camera operators and crews.
 Personal Role: Conducted research on a vision-based hand gesture recognition system based on colour and motion cues.

Research Assistant, York University, 2001.
 Supervisors: John Tsotsos and W.J. MacLean
 Project Title: Content-based image retrieval
 Project Goal: Optimize normalized grey-scale correlation search for content-based image retrieval by the introduction of a pyramid structure and a local estimate of the correlation surface gradient.
 Personal Role: Reimplement the initial proof of concept in C++/MFC for live demonstration purposes. Extend the approach to colour images.

Research Assistant, York University, 2000.
 Supervisors: John Tsotsos and W.J. MacLean
 Project Title: Stereo Active Vision Interface (SAVI)
 Project Goal: Detect frontal faces in real-world environments and perform particular active control tasks dependent on the hand gestures given by the person the system attends to.
 Personal Role: Conducted research in computer vision directed towards real-time hand gesture recognition. Technical coordinator of the SAVI project.

Research Assistant, University of Toronto, 1998-1999.
 Supervisors: John Tsotsos and Rainer Herpers
 Project Title: Stereo Active Vision Interface (SAVI)
 Project Goal: Detect frontal faces in real world and environments and perform particular active control tasks dependent on the hand gestures given by the person being attended to by the system.
 Personal Role: Conducted research in computer vision directed towards real-time colour-based face and hand tracking. Technical coordinator of the SAVI project.

5. Teaching Experience

Teaching Assistant, York University, 2000-present.
Teaching Assistant, University of Toronto, 1999.

6. Skills

C/C++, MFC, Matlab, Mathematica, Turing, UNIX, Windows

7. Awards

- [Precarn](#) scholarship, $7,500, 2007-2008.
- Ontario Graduate Student (OGS) Scholarship, $15,000, 2006-2007.
- Ontario Graduate Student (OGS) Scholarship, $15,000, 2005-2006.
- Institute of Robotics and Intelligent Systems ([IRIS](#)) Student Fellowship, $4,000, 2005.
- Joseph Liu Thesis Award, Department of Computer Science, York University, 2003.
- Natural Sciences and Engineering Research Council of Canada ([NSERC](#)) Post Graduate Scholarship (PGS B), $21,000 (per year), 2003-2005.
- Ontario Graduate Student (OGS) Scholarship, $15,000, 2003-2004 (declined in favor of NSERC).
- Institute of Robotics and Intelligent Systems ([IRIS](#)) Student Fellowship, $8,000, 2002.

8. Publications

Theses

- Derpanis, K.G., *Vision Based Gesture Recognition within a Linguistics Framework,* M.Sc. Thesis, Department of Computer Science, York University, Toronto, Canada, 2003 (also appears as Technical Report CS-2004-05, York University).

Refereed journal publications

- Derpanis, K.G., Wildes, R.P., *The Structure of Multiplicative Motions in Natural Imagery*, IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), 2009 (to appear).

- Derpanis, K.G., Wildes, R.P. and Tsotsos, J.K., *Definition and Recovery of Kinematic Features for Recognition of American Sign Language Movements*, Journal Image and Vision Computing (IVC), Vol. 26(12), pp. 1650-1662, 2008.

- Herpers R., Derpanis, K., MacLean, W.J., Verghese, G., Jenkin, M., Milios, E., Jepson, A., Tsotsos, J.K., *SAVI: An Actively Controlled Teleconferencing System.* Journal Image and Vision Computing, (IVC), Vol. 19(11), pp. 793-804, 2001.

Refereed conference publications

- Derpanis, K.G., Sizintsev, M., Cannons, K. and Wildes, R.P., *Efficient Action Spotting based on a Spacetime Oriented Structure Representation*, IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2010.

- Derpanis, K.G. and Wildes, R.P., *Dynamic Texture Recognition based on Distributions of Spacetime Oriented Structure*, IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2010.

- Derpanis, K.G. and Wildes, R.P., Detecting Spatiotemporal Structure Boundaries: Beyond Motion Discontinuities, Asian Conference on Computer Vision (ACCV), 2009.

- Derpanis, K.G. and Wildes, R.P., *Early Spatiotemporal Grouping with a Distributed Oriented Energy Representation*, IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2009.

- Sizintsev, M., Derpanis, K.G., and Hogue, A., *Histogram-Based Search: A Comparative Study,* IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2008.

- Derpanis, K.G., Leung E.T.H., and Sizintsev, M., *Fast Scale-Space Feature Representations by Generalized Integral Images*, IEEE International Conference on Image Processing (ICIP), Vol. 4, 521-524, 2007.

- Derpanis, K.G. and Chang, P., *Closed-form Linear Solution to Motion Estimation in Disparity Space*, IEEE Intelligent Vehicle Symposium, pp. 268-275, 2006.

- Mekuz, N., Derpanis, K.G. and Tsotsos, J.K., *Adaptive Step Size Window Matching,* International Conference on Pattern Recognition (ICPR), pp. 259-262, 2006.

- Derpanis, K.G. and Gryn, J.M., *Three-Dimensional nth Derivative Gaussian Separable Steerable Filters*, IEEE International Conference on Image Processing (ICIP), Vol. 3, pp. 553-556, 2005.

- Derpanis, K.G., Wildes, R.P., Tsotsos, J.K., *Hand Gesture Recognition within a Linguistics-Based Framework*. European Conference on Computer Vision (ECCV), pp. 282-296, 2004.

- Maclean, J., Herpers, R., Pantofaru, C., Wood, L., Derpanis, K., Topalovic, D. and Tsotsos, J.K., *Fast Hand Gesture Recognition for Real-Time Teleconferencing Applications*, IEEE International Workshop on Recognition, Analysis and Tracking of Faces and Gestures in Real-time Systems (RATFG), pp. 133-144, 2001.

- Herpers, R., Derpanis, K., Topalovic, D., MacLean, J., Jepson, A., Tsotsos, J., *Active Visual Control by Stereo Active Vision Interface SAVI*, Workshop Dynamische Perzeption, pp. 81-86., 2000.

- Herpers, R., Verghese, G., Derpanis, K., McCready, R., Maclean, W.J., Levin, A., Topalovic, D., Wood, L., Jepson, A., Tsotsos, J.K., *Detection and Tracking of Faces in Real Environments*, International Workshop on Recognition, Analysis and Tracking of Faces and Gestures in Real-Time Systems (RATFG), pp. 96-104, 1999.

- Herpers, R., Verghese, G., Chang, L., Darcourt, K., Derpanis, K., Kaufman, J., Jenkin, M., Milios, E., Jepson, A., Tsotsos, J.K., *An Active Stereo Vision System for Recognition of Faces and Related Hand Gestures*, Second International Conference on Audio and Video-based Biometric Person Authentication (AVBPA), pp. 211-216, 1999.

Technical reports

- Derpanis, K.G., Leung E.T.H., and Sizintsev, M., *Fast Scale-Space Feature Representations by Generalized Integral Images*, Technical Report CSE-2007-01 Department of Computer Science, York University, Toronto, Canada, 2007.

- Derpanis, K.G., *Characterizing Image Motion*, Technical Report CSE-2006-06 Department of Computer Science, York University, Toronto, Canada, 2006.

- Derpanis, K.G. and Gryn, J.M., *Three-Dimensional nth Derivative Gaussian Separable Steerable Filters*, Technical Report CS-2004-05 Department of Computer Science, York University, Toronto, Canada, 2004.

- Derpanis, K.G., Wildes, R.P., and Tsotsos, J.K., *Vision Based Gesture Recognition within a Linguistics Framework,* Technical Report CS-2004-02 Department of Computer Science, York University, Toronto, Canada, 2004.

Invited talks and demonstrations

- *On the Role of Spacetime Orientation for Representing and Analyzing Dynamic Visual Imagery with Applications,* University of Pennsylvania, GRASP seminar, December 2009 (invited talk).

- *Automated Gesture Recognition within a Linguistics-Based Framework,* University of Toronto, Department of Computer Science, April 2004 (invited talk).

- *Exploiting a Linguistics Decomposition for Gesture Recognition*, IEEE Workshop on Applications in Computer Vision, 2002 (invited demonstration).

Non-refereed posters

- *Recognizing the Fundamental Motions of Gestures*, IBM CASCON, 2002.
- *Qualitative Gesture Analysis*, 12th Annual Canadian Conference on Intelligent Systems, 2002.
- *Real-Time Face Detection and Hand Gesture Recognition*, Int. Workshop on Recognition, Analysis and Tracking of Faces and Gestures in Real-Time Systems, 1999.
- *SAVI: Stereo Active Vision Interface*, IBM CASCON, 1999.
- *Real-Time Tracking of Faces and Hands*, IBM CASCON, 1998.

9. Peer Reviewing

- International Conference on Artificial Neural Networks, 2006.
- International Joint Conference on Artificial Intelligence, 2005.
- Image and Vision Computing, 2004-present.
- Journal of Electronic Imaging, 2004-present.
- Computer Vision and Image Understanding, 2003-present.
- International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision, 2003.
- International Workshop on Recognition, Analysis, and Tracking of Faces and Gestures in Real-Time Systems (in conjunction with ICCV'99), 1999.

10. References

Available upon request.