

## JAMES M. COUGHLAN

Scientist  
Smith-Kettlewell Eye Research Institute  
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### EDUCATION

Harvard University. Ph.D. in Physics, 1998 (A.M. conferred in 1993). Thesis under A. L. Yuille on efficient computer vision algorithms for finding deformable shapes.

Harvard College. A.B. in Physics magna cum laude, 1990.

### HONORS

Best Paper Award for “Detecting and Locating Crosswalks using a Camera Phone” in Fourth IEEE Workshop on Embedded Computer Vision, in conjunction with Computer Vision and Pattern Recognition 2008.

Honorable Mention Winner of the 27th Annual Pattern Recognition Society Award for “An A\* Perspective on Deterministic Optimization for Deformable Templates.” Selected by Editorial Board of *Pattern Recognition*, 2001.

Ruth L. Kirschstein NRSA Fellow, 1998-1999.

White Award for Excellence in Teaching. Harvard Physics Department, 1993.

Phi Beta Kappa. Harvard College, 1989.

### PROFESSIONAL EXPERIENCE

SMITH-KETTLEWELL INSTITUTE  
Scientist, Rehabilitation Engineering Research Center.  
2008-present. San Francisco, CA

SMITH-KETTLEWELL INSTITUTE  
Associate Scientist, Rehabilitation Engineering Research Center.  
2003-2007. San Francisco, CA

SMITH-KETTLEWELL INSTITUTE  
Post-doctoral Fellow for Dr. Alan Yuille. 1998-2002. San Francisco, CA

HARVARD UNIVERSITY  
Teaching Fellow in Department of Physics. 1991-1994. Cambridge, MA

CAMBRIDGE RESEARCH LAB/DEC  
Research Assistant for Dr. Richard Szeliski. Summer 1993. Cambridge, MA

HARVARD UNIVERSITY  
Research Assistant for Prof.'s Michael Tinkham and Chris Lobb.  
Summer 1989.

Cambridge, MA

CERN  
Research Assistant for Prof. Karl Strauch. Summer 1988.

Geneva, Switzerland

## RESEARCH INTERESTS

Applications of computer vision for blind and visually impaired persons, including guidance at traffic intersections, hazard detection for blind wheelchair users and wayfinding using machine-readable signage. Bayesian probability methods in computer and human vision, particularly the use of graphical models and belief propagation for visual search and segmentation. Psychophysical modeling of visual search, eye movements and integration of foveal and peripheral information.

## TEACHING EXPERIENCE

Teaching Fellow, Physics Department, Harvard University. Fall 1991-summer 1994, summer 1996. Served as section leader and lab instructor for the following courses: Physics 15b, Introductory Electromagnetism; Physics 5, Honors Introductory Mechanics and Electromagnetism; Physics 191r, Advanced Laboratory; and Physics S-1ab, Principles of Physics.

## JOURNAL PUBLICATIONS

- J. Coughlan and R. Manduchi. "Functional Assessment of a Camera Phone-Based Wayfinding System Operated by Blind and Visually Impaired Users." *International Journal on Artificial Intelligence Tools*. Vol. 18, No. 3, pp. 379-397. 2009.
- H. Shen, J. Coughlan and V. Ivanchenko. "Figure-Ground Segmentation Using Factor Graphs." *Special Issue of Image and Vision Computing*. 2009.
- H. Shen, K.Y. Chan, J. Coughlan and J. Brabyn. "A Mobile Phone System to Find Crosswalks for Visually Impaired Pedestrians." *Technology and Disability*, Vol. 20, Number 3, pp. 217-224. 2008.
- J. Coughlan and R. Manduchi. "Color Targets: Fiducials to Help Visually Impaired People Find Their Way by Camera Phone." *EURASIP Journal on Image and Video Processing*, special issue on Image and Video Processing for Disability. Vol. 2007, Article ID 96357, 13 pages, 2007. doi:10.1155/2007/96357.
- J. Coughlan and H. Shen. "Dynamic Quantization for Belief Propagation in Sparse Spaces." *Computer Vision and Image Understanding (CVIU) Special issue on Generative-Model Based Vision*. Volume 106, Issue 1, pp. 47-58. April 2007.
- L. Renninger, P. Verghese and J. Coughlan. "Where to look next? Eye movements reduce local uncertainty." *Journal of Vision*. Volume 7, Number 3, Article 6, pp. 1-17. 2007.
- A.L. Yuille, J. Coughlan and S. Konishi. "The Generic Viewpoint Assumption and Planar Bias." *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*. Vol. 25, No. 6, pp. 775-778. June 2003.

- J. Coughlan and A.L. Yuille. "Manhattan World: Orientation and Outlier Detection by Bayesian Inference." *Neural Computation*. Vol. 15, No. 5, pp. 1063-88. May 2003.
- A.L. Yuille, J. Coughlan and S. Konishi. "The KGBR Viewpoint-Lighting Ambiguity." *Journal of the Optical Society of America A*. Vol. 20, Issue 1, pp. 24-31. January 2003.
- J. Coughlan and A.L. Yuille. "Algorithms from Statistical Physics for Generative Models of Images." *Image and Vision Computing (IVC) Special issue on Generative-Model Based Vision*. Vol. 21/1, pp.29 - 36. 2003.
- S. Konishi, A.L. Yuille and J. Coughlan. "A Statistical Approach to Multi-Scale Edge Detection." *Image and Vision Computing (IVC) Special issue on Generative-Model Based Vision*. Vol. 21/1, pp.37 - 48. 2003.
- S. Konishi, A.L. Yuille, J. Coughlan and S.C. Zhu. "Statistical Edge Detection: Learning and Evaluating Edge Cues." *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, Vol. 25, No. 1, pp. 57-74. January 2003.
- J. Coughlan and A.L. Yuille. "Bayesian A\* Tree Search with Expected  $O(N)$  Node Expansions for Road Tracking." *Neural Computation*. Vol. 14, No. 8, pp. 1929-58. August 2002.
- A.L. Yuille, J. Coughlan, Y. Wu and S.C. Zhu. "Order Parameters for Detecting Target Curves in Images: When does High-Level Knowledge Help?" *International Journal of Computer Vision*, 41(1/2):9-33. 2001.
- J. Coughlan, A.L. Yuille, C. English and D. Snow. "Efficient Deformable Template Detection and Localization without User Initialization." *Computer Vision and Image Understanding*, Vol. 78, No. 3, pp. 303-319. June 2000.
- A.L. Yuille and J. Coughlan. "An A\* Perspective on Deterministic Optimization for Deformable Templates." *Pattern Recognition: Special Edition on Optimization*. M. Pelillo and E.R. Hancock, editors. Volume 33, Issue 4, pp. 603-616. April 2000. *Honorable Mention Winner of the 27th Annual Pattern Recognition Society Award, 2001*.
- A.L. Yuille and J. Coughlan. "Fundamental Limits of Bayesian Inference: Order Parameters and Phase Transitions for Road Tracking." *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, Vol. 22, No. 2, pp. 160-173. February 2000.
- R. Szeliski and J. Coughlan. "Hierarchical Spline-Based Image Registration." *International Journal of Computer Vision*, 22(3):199-218. March/April 1997.

## REFEREED CONFERENCE PUBLICATIONS

- E. Tekin and J. Coughlan. "A Mobile Phone Application Enabling Visually Impaired Users to Find and Read Product Barcodes." 12<sup>th</sup> International Conference on Computers Helping People with Special Needs (ICCHP '10). Vienna, Austria. July 2010.
- V. Ivanchenko, J. Coughlan and H. Shen. "Real-Time Walk Light Detection with a Mobile Phone." 12<sup>th</sup> International Conference on Computers Helping People with Special Needs (ICCHP '10). Vienna, Austria. July 2010.
- V. Ivanchenko, H. Shen and J. Coughlan. "Elevation-Based Stereo Implemented in Real-Time on a GPU." 2009 IEEE Workshop on Applications of Computer Vision (WACV 2009). Snowbird, Utah. Dec. 2009.

- E. Tekin and J. Coughlan. "An Algorithm Enabling Blind Users to Find and Read Barcodes." 2009 IEEE Workshop on Applications of Computer Vision (WACV 2009). Snowbird, Utah. Dec. 2009.
- J. Coughlan and R. Manduchi. "A Mobile Phone Wayfinding System for Visually Impaired Users." Association for the Advancement of Assistive Technology in Europe (AAATE 2009). Florence, Italy. Sept. 2009.
- V. Ivanchenko, J. Coughlan and H. Shen. "Staying in the Crosswalk: A System for Guiding Visually Impaired Pedestrians at Traffic Intersections." Association for the Advancement of Assistive Technology in Europe (AAATE 2009). Florence, Italy. Sept. 2009.
- E. Tekin and J. Coughlan. "A Bayesian Algorithm for Reading 1D Barcodes." Sixth Canadian Conference on Computer and Robot Vision (CRV 2009). Kelowna, British Columbia. May 2009.
- V. Ivanchenko, J. Coughlan, B. Gerrey and H. Shen. "Computer Vision-Based Clear Path Guidance for Blind Wheelchair Users." 10<sup>th</sup> International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2008). Halifax, Canada. Oct. 2008.
- V. Ivanchenko, J. Coughlan and H. Shen. "Crosswatch: a Camera Phone System for Orienting Visually Impaired Pedestrians at Traffic Intersections." 11<sup>th</sup> International Conference on Computers Helping People with Special Needs (ICCHP '08). Linz, Austria. July 2008.
- R. Manduchi and J. Coughlan. "Portable and Mobile Systems in Assistive Technology: Introduction to the Special Thematic Session." 11<sup>th</sup> International Conference on Computers Helping People with Special Needs (ICCHP '08). Linz, Austria. July 2008.
- V. Ivanchenko, J. Coughlan and H. Shen. "Detecting and Locating Crosswalks using a Camera Phone." Fourth IEEE Workshop on Embedded Computer Vision, in conjunction with Computer Vision and Pattern Recognition (CVPR '08). Anchorage, Alaska. June 2008. *Received Best Paper Award in Workshop on Embedded Computer Vision.*
- J. Coughlan and H. Shen. "Terrain Analysis for Blind Wheelchair Users: Computer Vision Algorithms for Finding Curbs and Other Negative Obstacles." Conference and Workshop on Assistive Technology for People with Vision and Hearing Impairments (CVHI '07). Granada, Spain. August 2007.
- H. Shen and J. Coughlan. "Grouping Using Factor Graphs: an Approach for Finding Text with a Camera Phone." Workshop on Graph-based Representations in Pattern Recognition (Gbr '07, in conjunction with The International Association for Pattern Recognition). June 2007. Alicante, Spain.
- J. Coughlan and R. Manduchi. "Functional Assessment of a Camera Phone-Based Wayfinding System Operated by Blind Users." IEEE-BAIS (IEEE Computer Society and the Biological and Artificial Intelligence Society) RAT-07 (Research on Assistive Technologies) Symposium. Dayton, Ohio. April 2007.
- H. Shen and J. Coughlan. "Finding Text in Natural Scenes by Figure-Ground Segmentation." International Conference on Pattern Recognition (ICPR '06). Hong Kong. August 2006.
- J. Coughlan, R. Manduchi and H. Shen. "Computer Vision-Based Terrain Sensors for Blind Wheelchair Users." 10<sup>th</sup> International Conference on Computers Helping People with Special Needs (ICCHP '06). Linz, Austria. July 2006.

- H. Shen and J. Coughlan. "Reading LCD/LED Displays with a Camera Cell Phone." 2<sup>nd</sup> IEEE Workshop on Embedded Computer Vision (ECVW '06), in conjunction with CVPR 2006. New York. June 2006.
- J. Coughlan, R. Manduchi and H. Shen. "Cell Phone-based Wayfinding for the Visually Impaired." 1<sup>st</sup> International Workshop on Mobile Vision, in conjunction with ECCV 2006. Graz, Austria. May 2006.
- J. Coughlan and H. Shen. "A Fast Algorithm for Finding Crosswalks using Figure-Ground Segmentation." 2<sup>nd</sup> Workshop on Applications of Computer Vision, in conjunction with ECCV 2006. Graz, Austria. May 2006.
- J. Coughlan, R. Manduchi, M. Mutsuzaki and H. Shen. "Rapid and Robust Algorithms for Detecting Colour Targets." 10<sup>th</sup> Congress of the International Colour Association, AIC Colour '05, pp. 959 - 962. Granada, Spain. May 2005.
- L. W. Renninger, J. Coughlan, P. Verghese and J. Malik. "An Information Maximization Model of Eye Movements." Neural Information Processing Systems (NIPS '04). Vancouver, Canada. December 2004.
- J. Coughlan and H. Shen. "Shape Matching with Belief Propagation: Using Dynamic Quantization to Accommodate Occlusion and Clutter." Generative-Model Based Vision (GMBV 2004, in conjunction with CVPR 2004). Washington, DC. June 2004.
- A. Rangarajan, J. Coughlan and A. L. Yuille. "A Bayesian Network Framework for Relational Shape Matching." The Ninth International Conference on Computer Vision (ICCV '03). pp. 671-678. Nice, France. October 2003.
- J. Coughlan and S. Ferreira. "Finding Deformable Shapes using Loopy Belief Propagation." The Seventh European Conference on Computer Vision (ECCV '02). pp. 453-468. Copenhagen, Denmark. May 2002.
- J. Coughlan and A.L. Yuille. "Algorithms from Statistical Physics for Generative Models of Images." First International Workshop on Generative-Model-Based Vision (in conjunction with ECCV '02). Copenhagen, Denmark. May 2002.
- S. Konishi, A.L. Yuille and J. Coughlan. "A Statistical Approach to Multi-Scale Edge Detection." First International Workshop on Generative-Model-Based Vision (in conjunction with ECCV '02). Copenhagen, Denmark. May 2002.
- J. Coughlan and A.L. Yuille. "The g Factor: Relating Distributions on Features to Distributions on Images." Neural Information Processing Systems (NIPS '01). Vancouver, Canada. December 2001.
- A.L. Yuille, J. Coughlan and S. Konishi. "The KGBR Viewpoint-Lighting Ambiguity and its Resolution by Generic Constraint." International Conference on Computer Vision (ICCV '01). Vancouver, Canada. July 2001.
- J. Coughlan and A.L. Yuille. "The Manhattan World Assumption: Regularities in Scene Statistics which Enable Bayesian Inference." Neural Information Processing Systems (NIPS '00). Denver, CO. December 2000.
- A.L. Yuille, J. Coughlan, S. C. Zhu and Y. Wu. "Order Parameters for Minimax Entropy Distributions: When does High-Level Knowledge Help?" Computer Vision and Pattern Recognition (CVPR '00). Hilton Head, SC. June 2000.

A.L. Yuille, J. Coughlan and S. M. Konishi. "The Generic Viewpoint Constraint Resolves the Generalized Bas Relief Ambiguity." Conference on Information Sciences and Systems (CISS '00). Princeton, NJ. March 2000.

J. Coughlan and A.L. Yuille. "Manhattan World: Compass Direction from a Single Image by Bayesian Inference." International Conference on Computer Vision (ICCV '99). Corfu, Greece. September 1999.

J. Coughlan and A.L. Yuille. "Bayesian A\* Tree Search with Expected  $O(N)$  Convergence Rates for Road Tracking." Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR '99). York, England. July 1999.

A.L. Yuille and J. Coughlan. "High-Level and Generic Priors for Visual Search: When Does High-Level Knowledge Help?" Computer Vision and Pattern Recognition (CVPR '99). Fort Collins, CO. June 1999.

S. M. Konishi, A.L. Yuille, J. Coughlan and S.C. Zhu. "Fundamental Bounds on Edge Detection: An Information Theoretic Evaluation of Different Edge Cues." Computer Vision and Pattern Recognition (CVPR '99). Fort Collins, CO. June 1999.

A.L. Yuille and J. Coughlan. "Order Parameters and Fundamental Bounds for Visual Search." Conference on Information Sciences and Systems (CISS '99). Baltimore, MD. March 1999.

J. Coughlan and A.L. Yuille. "A Phase Space Approach to Minimax Entropy Learning and the Minutemax Approximation." Neural Information Processing Systems (NIPS '98). Denver, CO. December 1998.

A.L. Yuille and J. Coughlan. "Convergence Rates of Algorithms for Visual Search: Detecting Visual Contours." Neural Information Processing Systems (NIPS '98). Denver, CO. December 1998.

J. Coughlan, A.L. Yuille, C. English, D. Snow. "Efficient Optimization of a Deformable Template using Dynamic Programming." Computer Vision and Pattern Recognition (CVPR '98). Santa Barbara, CA. June 1998.

A.L. Yuille and J. Coughlan. "Twenty Questions, Focus of Attention, and A\*: a Theoretical Comparison of Optimization Strategies." Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR '97). Venice, Italy. May 1997.

R. Szeliski and J. Coughlan. "Hierarchical Spline-Based Image Registration." Computer Vision and Pattern Recognition (CVPR '94). Seattle, WA. June 1994.

## **ABSTRACTS AND DEMONSTRATIONS**

E. Tekin, J. Coughlan and H. Shen. "A System for Reading Non-Document Text for Persons with Vision Disabilities." To appear in 25<sup>th</sup> Annual International Technology & Persons with Disabilities Conference. San Diego, CA. March 2010.

V. Ivanchenko, H. Shen and J. Coughlan. "Crosswatch: a System to Help Visually Impaired Pedestrians Find and Traverse Crosswalks." To appear in 25<sup>th</sup> Annual International Technology & Persons with Disabilities Conference. San Diego, CA. March 2010.

R. Manduchi, J. Coughlan and V. Ivanchenko. "Search Strategies of Visually Impaired Persons using a Camera Phone Wayfinding System." 11<sup>th</sup> International Conference on Computers Helping People with Special Needs (ICCHP '08). Linz, Austria. July 2008.

K.-Y. Chan, R. Manduchi and J. Coughlan. "Accessible Spaces: Navigating through a Marked Environment with a Camera Phone." Ninth International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2007). Tempe, AZ. Oct. 2007.

J. Coughlan. "Using a Camera Phone to Find and Read Signs for the Visually Impaired." Biomedical Engineering Society Annual Fall Meeting, BMES 2007. Los Angeles, CA. Sept. 2007.

P. Verghese and J. Coughlan. "Evolution of a motion trajectory over time." Vision Sciences Society. Sarasota, Florida. May 2007.

L. W. Renninger, P. Verghese and J. Coughlan. "Eye movements can be understood within an information theoretic framework." Cosyne 2005. Salt Lake City, Utah. March 2005.

L. W. Renninger, P. Verghese and J. Coughlan. "Modeling eye movements in a shape discrimination task." Vision Sciences Society. Sarasota, Florida. May 2005.

#### **NON-PEER-REVIEWED CONFERENCE PUBLICATIONS**

A.L. Yuille, J. Coughlan and S. C. Zhu. "A Unified Framework for Performance Analysis of Bayesian Inference." SPIE (The International Society for Optical Engineering) AeroSense International Symposium on Aerospace/Defense Sensing, Simulation, and Controls. Orlando, FL. April 2000.

A.L. Yuille and J. Coughlan. "Visual Search: Fundamental Bounds, Order Parameters, and Phase Transitions." Proc. of IEEE workshop on Statistical and Computational Theories of Vision. Fort Collins, CO. June 1999.

A.L. Yuille and J. Coughlan. "Detecting Visual Contours: Fundamental Performance Bounds and Algorithmic Complexity." Workshop on Perceptual Organization in Computer Vision. Santa Barbara, CA. June 1998.

#### **BOOK CHAPTERS**

J. Coughlan and A.L. Yuille. "A Large Deviation Theory Analysis of Bayesian Tree Search." In **Mathematical Methods in Computer Vision**. Eds. P. Olver and A. Tannenbaum. IMA Volumes in Mathematics and its Applications, Volume 133, pp. 1-17. Springer-Verlag New York Inc., 2003.

A.L. Yuille and J. Coughlan. "From Generic to Specific: An Information Theoretic Perspective on the Value of High-Level Information." In **Probabilistic Models of the Brain: Perception and Neural Function**. Eds. R. P. N. Rao, B. A. Olshausen, and M. S. Lewicki. pp. 135-154. MIT Press, 2002.

#### **FUNDED RESEARCH**

PI on "A Cell Phone-based Sign Reader for Blind and Visually Impaired Persons." NIH grant no. 1 R01 EY018210-01A1 (09/01/09 - 08/31/11). Total award: \$826,747.

PI on “A Non-Document Text and Display Reader for Visually Impaired Persons.”  
NIH grant no. 1 R01 EY018890-01 (04/01/08 - 03/31/11). Total award: \$1,280,991.

PI on “A Cell Phone-Based Street Intersection Analyzer for Visually Impaired Pedestrians.”  
NIH grant no. 1R01EY018345-01 (9/01/07 - 8/31/10). Total award: \$1,027,295.

PI on “Wayfinding for the Blind and Visually Impaired Using Passive Environmental Labels.”  
NIH grant no. R21 EY017003-01A1 (9/30/06 - 8/31/08). Total award: \$423,775.

PI on “Traffic Intersection Analysis Algorithms for the Blind.” NIH grant no. R21 EY015187-01A2 (4/1/05 – 3/31/07). Total award: \$472,424.

PI on “Computer Vision-Based Terrain Sensors for Blind Wheelchair Users.” NSF grant no. IIS0415310 (9/15/04-9/14/07). Total award: \$672,634.

## **PATENTS**

R. Szeliski and J. Coughlan. A method for registering two or more images using spline displacement functions. US Patent #05611000 issued March 1997.

## **ORAL PRESENTATIONS**

Prof. Serge Belongie’s computer vision group meeting. UC San Diego. Oct. 5, 2009.

3<sup>rd</sup> European eAccessibility Forum: Mobile communications helping people with disabilities at work. Paris, France. Mar. 30, 2009.

AFOSR (Air Force Office of Scientific Research) Workshop on Surface Representation in Mid-Level Vision. Smith-Kettlewell. San Francisco, CA. Nov. 1, 2008.

SUNY-OPT colloquium. New York, NY. Sept. 22, 2008.

Nokia Research Center colloquium. Palo Alto, CA. Aug. 26, 2008.

11<sup>th</sup> International Conference on Computers Helping People with Special Needs (ICCHP '08). Linz, Austria. July 9, 2008.

Guest lecture for course: “Universal Access: Disability, Technology, and Society.” UC Santa Cruz. Feb. 15, 2008.

Conference and Workshop on Assistive Technology for People with Vision and Hearing Impairments (CVHI '07). Granada, Spain. August 29, 2007.

Minnesota Laboratory for Low-Vision Research. Minneapolis, MN. June 22, 2007.

PARC vision colloquium. Palo Alto, CA. March 22, 2007.

10<sup>th</sup> International Conference on Computers Helping People with Special Needs (ICCHP '06). Linz, Austria. July 14, 2006.

Workshop on Embedded Computer Vision, in conjunction with CVPR 2006. New York. June 18, 2006.

1<sup>st</sup> International Workshop on Mobile Vision, in conjunction with ECCV 2006. Graz, Austria. May 13, 2006.

2<sup>nd</sup> Workshop on Applications of Computer Vision, in conjunction with ECCV 2006. Graz, Austria. May 12, 2006.

Smith-Kettlewell Eye Research Institute, Colloquium seminar. San Francisco, CA. April 14, 2005.

UC Santa Cruz, Computer Engineering department seminar. Santa Cruz, CA. April 8, 2005.

Stanford University, Computer Science department seminar. Palo Alto, CA. May 24, 2004.

Bay Area Vision Meeting. HP Laboratories. Palo Alto, CA. March 4, 2004.

Bay Area Vision Meeting. UC Santa Cruz. Santa Cruz, CA. June 11, 2003.

UC Santa Cruz, Computer Engineering department seminar. Santa Cruz, CA. May 21, 2003.

Florida State University, The School of Computational Science and Information Technology (CSIT) and the Department of Statistics. Tallahassee, Florida. February 25, 2003.

Honda Research Institute USA, Inc. Mountain View, CA. February 6, 2003.

University of British Columbia, Department of Electrical and Computer Engineering. May 23, 2002.

Johns Hopkins University, Center for Imaging Science. April 2, 2002.

Second International Workshop on Statistical and Computational Theories of Vision (SCTV '01, in conjunction with ICCV '01). Vancouver, Canada. July 13, 2001.

University of Minnesota, Departments of Psychology and Computer Science. February 14, 2001.

Bayes 2001 Meeting, Smith-Kettlewell Institute. January 8-12, 2001.

Seventh San Francisco Bay Area Vision Meeting, Smith-Kettlewell Institute. San Francisco, CA. December 8, 2000.

Neural Information Processing Systems (NIPS '00). Denver, CO. December 2000.

Workshop on Recognition/Identification/Tracking of People and Deformable Objects. Fifth San Francisco Bay Area Vision Meeting, SRI International. December 1999.

Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR '99). York, England. July 1999.

Computer Vision Group Seminar. New York University, May 1999.

Pattern Theory and Vision Seminar. Brown University, Dept. of Applied Math. May 1999.

Laboratory for Information and Decision Systems Seminar. MIT. May 1999.

Vision colloquium. Xerox Parc Palo Alto Research Center. April 1999.

Workshop on Probabilistic Aspects in Computer Vision. Fourth San Francisco Bay Area Vision Meeting. Stanford University. March 1999.

Departmental colloquium. UC Berkeley, Computer Science Department. February 1999.

## **REVIEWS**

State of Pennsylvania Department of Health scientific peer grant review, 2010

US Army Medical Research and Materiel Command (USAMRMC)/ American Institute of Biological Sciences scientific peer grant review, 2009

Canadian Conference on Computer and Robot Vision (CRV 2010)

Computer Vision and Image Understanding

Computer Vision and Pattern Recognition (CVPR 2003, 2004, 2005, 2006, 2007, 2009, 2010)

Department of Veterans Affairs Rehabilitation Research and Development Scientific Merit Review, 2008

Eye Tracking Research & Applications (ETRA 2010)

European Conference on Computer Vision (ECCV 2008)

IEEE Transactions on Biomedical Engineering

IEEE Transactions on Image Processing

IEEE Transactions on Neural Systems & Rehabilitation Engineering

IEEE Transactions on Pattern Analysis and Machine Intelligence

IEEE Transactions on Pattern Analysis and Machine Intelligence: Special Issue on Perceptual Organization in Computer Vision

International Conference on Computer Vision (ICCV 2009)

International Conference on Image Analysis and Processing

International Conference on Multimodal Interfaces (ICMI 2006)

International Conference on Pattern Recognition (ICPR 2008)

International Journal of Computer Vision

International Journal of Image and Graphics, 2008

JOSA A (Journal of the Optical Society of America A)

Journal of Vision

NSF Grant Review Panel, 2007

Neural Information Processing Systems (2000, 2001, 2002, 2004, 2005, 2006, 2007)

Perception

SIGGRAPH 2007

US-Israel Binational Science Foundation

Vision Research

Workshop on Embedded Computer Vision (ECVW 2006), in conjunction with CVPR 2006

Workshops on Generative Model-Based Vision: GMBV '02 (in conjunction with ECCV '02) and GMBV '04 (in conjunction with CVPR '04)

Workshop on Statistical and Computational Theories of Vision (SCTV '99, in conjunction with CVPR '99)

## **PROFESSIONAL ACTIVITIES**

Co-chair, 3<sup>rd</sup> Workshop on Computer Vision Applications for the Visually Impaired (CVAVI '10), in conjunction with CVPR 2010. San Francisco, CA. June, 2010.

Co-organizer, Special Thematic Session on Portable and Mobile Systems in Assistive Technology, in conjunction with ICCHP 2010 (11th International Conference on Computers Helping People with Special Needs). Vienna, Austria. July 2010.

Program Committee, 7<sup>th</sup> Canadian Conference on Computer and Robot Vision (CRV 2010). Ottawa, Ontario. June 2010.

Program Committee, 5<sup>th</sup> IEEE Workshop on Embedded Computer Vision, in conjunction with ICCV 2009. Kyoto, Japan. Oct. 2009.

Program Committee, 7<sup>th</sup> International Conference on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR). Bonn, Germany. August 2009.

Tutorial presenter at Sixth Canadian Conference on Computer and Robot Vision (CRV 2009). Kelowna, British Columbia. May 2009.

Program Committee, 3<sup>rd</sup> European eAccessibility Forum. March 2009. Paris, France.

Co-chair, Workshop on Computer Vision Applications for the Visually Impaired (CVAVI '08), in conjunction with European Conference on Computer Vision (ECCV '08). Marseille, France. Oct. 18, 2008.

Technical Committee, 19th International Conference on Pattern Recognition (ICPR '08). Tampa, Florida. Dec. 2008.

Co-organizer, Special Thematic Session on Portable and Mobile Systems in Assistive Technology, in conjunction with ICCHP 2008 (11th International Conference on Computers Helping People with Special Needs). Linz, Austria. July 2008.

International Program Committee (IPC), IASTED (International Association of Science and Technology for Development) International Conference on Assistive Technologies (AT 2008). Baltimore. April 2008.

Organizer, Session on Computer Vision Applications for the Visually Impaired, in OSA (Optical Society of America) Fall Vision Meeting. Berkeley, CA. Sept. 2007.

Program Committee, Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR '07). EZhou, Hubei, China. August 2007.

Program Committee, Computer Vision and Pattern Recognition (CVPR '07). Minneapolis, Minnesota. June 2007.

Program Committee, Workshop on Graph-based Representations in Pattern Recognition (Gbr '07, in conjunction with The International Association for Pattern Recognition). June 2007. Alicante, Spain.

Workshop on Perceptual Organization in Computer Vision (POCV '06, in conjunction with CVPR '06). New York, NY. June 2006.

Invited participant, NSF Human-Centered Computing (HCC) Workshop. Arlington, VA. 2006.

Program Committee, Workshop on Perceptual Organization in Computer Vision (POCV '06, in conjunction with CVPR '06). New York, NY. June 2006.

Program Committee, Computer Vision and Pattern Recognition (CVPR '06). New York, NY. June 2006.

Co-chair, 1<sup>st</sup> IEEE Workshop on Computer Vision Applications for the Visually Impaired (CVAVI '05), in conjunction with CVPR '05. San Diego, CA. June 20, 2005.

NSF Grant Review Panelist. Arlington, VA. 2005.

Program Committee, Computer Vision and Pattern Recognition (CVPR '05). San Diego, CA. June 2005.

Program Committee, Computer Vision and Pattern Recognition (CVPR '04). Washington, DC. July 2004.

Program Committee, Second International Workshop on Generative-Model-Based Vision GMBV '04, in conjunction with CVPR '04). Washington, DC. July 2004.

Program Committee, Computer Vision and Pattern Recognition (CVPR '03). Madison, Wisconsin. June 2003.

Program Committee, Statistical Analysis in Computer Vision (in conjunction with CVPR '03). Madison, Wisconsin. June 2003.

Program Committee, First International Workshop on Generative-Model-Based Vision (in conjunction with ECCV '02). Copenhagen, Denmark. May 2002.

## MISCELLANEOUS

Co-wrote tutorial for Shed Skin, an open source optimizing Python-to-C++ compiler. M. Dufour and J. Coughlan. "Shed Skin Tutorial." <http://code.google.com/p/shedskin/>

## REFERENCES AVAILABLE

Alan Yuille  
Department of Statistics and Psychology  
UCLA  
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