Curriculum Vitae

Greg Mori

Associate Professor
School of Computing Science
8888 University Drive
Burnaby, BC V5A 1S6, Canada

Email: mori@cs.sfu.ca
Web: http://www.cs.sfu.ca/~mori
Tel.: +1 (778) 782 7111
Fax: +1 (778) 782 3045

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1 Background

1.1 Education

2004 Ph.D. in Computer Science
Department of Electrical Engineering and Computer Sciences
University of California at Berkeley
Thesis: Detecting and Localizing Human Figures
Advisor: Jitendra Malik

1999 Hon. B.Sc. in Computer Science and Mathematics with High Distinction
University of Toronto

1.2 Employment History

09/2010 - current Associate Professor
School of Computing Science, Simon Fraser University

08/2004 - 08/2010 Assistant Professor
School of Computing Science, Simon Fraser University

08/1999 - 07/2004 Graduate Student Researcher
Department of Electrical Engineering and Computer Sciences, UC Berkeley
Advisor: Jitendra Malik

06/2000 - 08/2000 Student Intern, Computer Vision Group
Intel Corporation, Santa Clara, CA
Host: Gary Bradski

06/1999 - 08/1999 Student Intern, graphics research
Electronic Arts, Burnaby, BC
Host: John Buchanan

10/1997 - 08/1998 Student Intern, Media Integration and Communications Research Laboratories
Advanced Telecommunications Research (ATR), Kyoto, Japan
Host: Seiki Inoue

05/1997 - 08/1997 Student Intern, Consortium for Software Engineering Research (CSER)
University of Toronto / IBM Centre for Advanced Studies, Toronto, ON
Advisors: Kostas Kontogiannis and John Mylopoulos

1.3 Awards

2011 Award for Excellence in Research (early career)
Type: Research
Organization: SFU Faculty of Applied Science

2010 Outstanding Reviewer
Type: Service
Organization: IEEE Conference on Computer Vision and Pattern Recognition (CVPR)

2009 Outstanding Reviewer
Type: Service
Organization: IEEE International Conference on Computer Vision (ICCV)

2008 Discovery Accelerator Supplement
Type: Research
Organization: Natural Sciences and Engineering Research Council of Canada (NSERC)

2008 Award for Research Excellence and Service
Type: Research / Service
Organization: Canadian Image Processing and Pattern Recognition Society (CIPPRS)

2006 Excellence in Undergraduate Teaching Award
Type: Teaching
Organization: SFU Undergraduate Computing Science Student Society (CSSS)

1999 Regents' Fellowship
Type: Fellowship
Organization: University of California at Berkeley

1995-1997 Regents' Scholarship
Type: Fellowship
Organization: Victoria College (University of Toronto)

2 Research

2.1 Awards

NSERC Discovery Accelerator Supplement 2008-2011

The NSERC Discovery Accelerator Supplement (DAS) provides substantial and timely resources to a small group of outstanding researchers who have a well-established research program, and who show strong potential to become international leaders in their respective area of research[1]. The DAS provides a research grant of $120,000 over 3 years. NSERC recognizes 100 Canadian researchers, across all fields of science and engineering, with DAS awards annually. I was a recipient in 2008.

CIPPRS Award for Research Excellence and Service 2008

The Canadian Image Processing and Pattern Recognition Society (CIPPRS) annually recognizes a researcher for research excellence and contributions to the research community. I received this award in 2008 for my research on human pose estimation and activity recognition, and service to the Canadian computer vision community.

2.2 Research Program

My research is in computer vision, and is concerned with developing algorithms that automatically interpret images and videos, particularly those containing people. I have made significant contributions towards solving the problems of human pose estimation and human action recognition. At a broad level, the methodology followed is to construct features and representations that capture our intuition regarding these vision problems. We operationalize these via machine learning algorithms, adapting them to suit our purposes.

Examples of this methodology are described in detail below. Specific examples of features and representations include work on *superpixels* for representing images, motion features for human action recognition, and our *bag-of-words* model for video sequences. We have developed variants of machine learning algorithms for models such as the hidden Conditional Random Field (hCRF) and Latent Dirichlet Allocation (LDA) to implement these ideas.

2.3 Most Significant Research Contributions

Conference publications are extremely important in computer vision. Top conferences utilize rigourous double-blind peer-review processes and are very selective. Acceptance rates for CVPR, ECCV, and ICCV, the major computer vision conferences, are typically in the 20-30% range. I regularly publish in these top venues, with 16 papers in the

[1] `http://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/DGAS-SGSA_eng.asp`

top computer vision (CVPR, ICCV, ECCV) and machine learning (NIPS, ICML) conferences in the 6 years since I started at SFU. My journal papers include 5 in T-PAMI, a top journal in computer vision.

Publication numbers below refer to those in Sec. 2.4, which includes conference acceptance rate data.

Human Pose Estimation

A main thrust of my research has been in developing approaches for human body pose estimation. We did pioneering work in the use of *exemplar* methods for localizing human figures in still images. These methods are based on matching input images to a set of stored example 2D images of human figures with labelled joint locations. The work ([J2] and conference version) is heavily cited (290 citations as of Oct. 2010 according to Google Scholar).

We have also developed methods for combining segmentation and recognition in the context of human pose estimation. Our work used a segmentation-as-preprocessing paradigm in which an input image is first over-segmented into small regions called superpixels [C5] and is also widely cited (206 citations as of Oct. 2010 according to Google Scholar). This strategy is useful for general object recognition problems, and the problem of not only recognizing, but also segmenting objects has received a large amount of attention since our work in 2004. Numerous other papers have made use of the superpixel approach for object recognition (e.g. Ke and Hebert, ICCV07; Russell et al., CVPR06; Ramanan, CVPR07).

Human Action Recognition

We have developed a body of work on human action recognition, with a primary focus on methods using motion cues, e.g. [J5,C14,C17,C20,C18] (664 citations to this body of work as of Oct. 2010 according to Google Scholar). Incorporating action sequence information into human action recognition is a standard challenge. Previous research takes one of two approaches. Either temporal sequence information is ignored, with video frames classified independently, or sequence models (e.g. HMMs, DBNs) are constructed. We developed a novel *bag-of-words* sequence model [J5] that falls in between – capturing temporal information via co-occurrence statistics among actions, without the complexity of a full temporal model. This method proved effective on a variety of standard benchmark datasets.

We have also developed part-based representations for human actions, learning motion part features [C14] and models combining global-scale and local part features [C17,C20]. The mid-level motion feature learning method [C14] obtained state-of-the-art accuracy on benchmark KTH and Weizmann human action datasets, and is very efficient. It formed the basis for recent work on real-time gesture recognition [C18]. Our work on global-scale and local part features [C17,C20] has developed a principled method for combining these two sources of information, and shown the effectiveness of using the *max-margin* learning criterion for finding the parameters of this type of model.

Breaking Visual CAPTCHAs

A CAPTCHA is a program that can generate and grade tests that humans can pass but current computer programs cannot pass. CAPTCHA stands for "Completely Automated Public Turing test to Tell Computers and Humans Apart". CAPTCHAs are employed by internet companies such as Yahoo and TicketMaster to prevent *bots* from signing up for free email accounts or purchasing tickets. The most commonly deployed CAPTCHAs are the word-puzzle type, where a distorted word placed in a cluttered background is presented to a user who is asked to read the word.

We developed methods for breaking these word-based CAPTCHAs ([C3],[J1]) which were based on our general-purpose object recognition algorithms. This domain provided evidence of the effectiveness of our computer vision algorithms. I have also done consulting work with companies to develop CAPTCHAs which are resistant to automated attacks. In addition, this work has received a large amount of attention from the popular press. This work was featured in the New York Times Science Section. The webpage describing our approach has received over 430,000 visitors.

Animal Activity Monitoring

For natural scientists, gathering data can be a labour-intensive and expensive process. As an example, traditional techniques for population-scale data collection are marking and recapturing individual animals or performing aerial counts. An alternative or complement to these methods is the use of camera systems which collect information largely in the absence of human operators. However, cameras generate large amounts of data, which are typically sorted manually to collect the required data. As computer vision researchers, there is a great opportunity to aid natural scientists by automating parts of the video analysis process.

We have applied our algorithms which we developed for monitoring the activities of, and detecting the presence of humans to the problem of animal activity monitoring. In collaborations with our biologist partners, Prof. Larry Dill (FRSC) and Prof. Kristina Rothley, we have developed systems for counting fish viewed from underwater cameras ([C11]), analyzing the activities of grasshoppers in cages ([C10]), and detecting grizzly bears at a remote site in the Yukon ([J4]).

2.4 Publications

Legend:
Names in **bold** face are students.
The acceptance rate is mentioned where available (mainly for the top-tier conferences).

Refereed Journal Papers

[J7] **T. Lan**, **Y. Wang**, **W. Yang**, S. Robinovitch and G. Mori. Discriminative Latent Models for Recognizing Contextual Group Activities. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, T-PAMI 2011 (to appear).

[J6] **Y. Wang** and G. Mori. Hidden Part Models for Human Action Recognition: Probabilistic vs. Max-Margin. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, T-PAMI 33(7) pp.1310-1323, 2011.

[J5] **Y. Wang** and G. Mori. Human Action Recognition by Semi-Latent Topic Models. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, T-PAMI 31(10) pp.1762-1774, 2009.

[J4] **J. Wawerla**, **S. Marshall**, G. Mori, K. Rothley, and **P. Sabzmeydani**. BearCam: Automated Wildlife Monitoring At The Arctic Circle. *Journal of Machine Vision and Applications*, MVA 20(5) pp.303-317, June 2009.

[J3] **R. Botchen**, **S. Bachthaler**, **F. Schick**, M. Chen, G. Mori, D. Weiskopf, and T. Ertl. Action-based Multi-field Video Visualization. *IEEE Transactions on Visualization & Computer Graphics*, T-VCG 14(4) pp.885-899, July/August 2008.

[J2] G. Mori and J. Malik. Recovering 3d Human Body Configurations Using Shape Contexts. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, T-PAMI 28(7) pp.1052-1062, July 2006.

[J1] G. Mori, S. Belongie, and J. Malik. Efficient Shape Matching Using Shape Contexts. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, T-PAMI 27(11) pp.1832-1837, Nov. 2005.

Refereed Book Chapters

[B2] **W. Yang**, **Y. Wang**, and G. Mori. Learning Transferable Distance Functions for Human Action Recognition *Machine Learning for Vision-based Motion Analysis*, Springer, 2010.

[B1] S. Belongie, G. Mori, and J. Malik. Matching with Shape Contexts. *Analysis and Statistics of Shapes*, eds. T. Yezzi and H. Krim, Birkhäuser, 2006.

Refereed Conference Papers

[C34] **T. Lan**, **Y. Wang**, and G. Mori. Discriminative Figure-Centric Models for Joint Action Localization and Recognition. In *13th International Conference on Computer Vision*, ICCV 2011. Barcelona, Spain, November 2011.

[C33] **Z. F. Huang**, **W. Yang**, **Y. Wang**, and G. Mori. LatentBoost for Action Recognition. In *22nd British Machine Vision Conference*, BMVC 2011. Dundee, Scotland, August 2011. *accept rate:* $\frac{133}{418} = 31.8\%$.

[C32] **Y. Wang** and G. Mori. Max-margin Latent Dirichlet Allocation for Image Classification and Annotation. In *22nd British Machine Vision Conference*, BMVC 2011. Dundee, Scotland, August 2011. *accept rate:* $\frac{133}{418} = 31.8\%$.

[C31] **B. Milligan**, G. Mori, and R. Vaughan. Selecting and Commanding Groups of Robots in a Vision Based Multi-Robot System. In *6th ACM/IEEE International Conference on Human-Robot Interaction (Video Session)*, HRI 2011. Lausanne, Switzerland, March 2011. **Best Video Award Winner.**

[C30] **T. Lan**, **Y. Wang**, **W. Yang**, and G. Mori. Beyond Actions: Discriminative Models for Contextual Group Activities. *Neural Information Processing Systems*, NIPS 2010. Vancouver, BC, Canada, December 2010. *accept rate:* $\frac{293}{1219} = 24.0\%$.

[C29] **Y. Wang** and G. Mori. A Discriminative Latent Model of Image Region and Object Tag Correspondence. *Neural Information Processing Systems*, NIPS 2010. Vancouver, BC, Canada, December 2010. *accept rate:* $\frac{293}{1219} = 24.0\%$.

[C28] **M. Ranjbar**, G. Mori, and **Y. Wang**. Optimizing Complex Loss Functions in Structured Prediction. *European Conference on Computer Vision*, ECCV 2010. Hersonissos, Greece, September 2010. *accept rate:* $\frac{322}{1174} = 27.4\%$.

[C27] **Y. Wang** and G. Mori. A Discriminative Latent Model of Object Classes and Attributes. *European Conference on Computer Vision*, ECCV 2010. Hersonissos, Greece, September 2010. *accept rate:* $\frac{322}{1174} = 27.4\%$.

[C26] **W. Yang**, **Y. Wang**, and G. Mori. Recognizing Human Actions from Still Images with Latent Poses. *IEEE Computer Vision and Pattern Recognition*, CVPR 2010. San Francisco, CA, June 2010. *accept rate:* $\frac{463}{1728} = 26.8\%$.

[C25] **B. Y. S. Khanloo**, **F. Stefanus**, **M. Ranjbar**, Z.-N. Li, N. Saunier, T. Sayed, and G. Mori. Max-Margin Offline Pedestrian Tracking with Multiple Cues. *Seventh Canadian Conference on Computer and Robot Vision*, CRV 2010. Ottawa, ON, May 2010.

[C24] **A. Couture-Beil**, R. Vaughan, and G. Mori. Selecting and Commanding Individual Robots in a Multi-Robot System. *Seventh Canadian Conference on Computer and Robot Vision*, CRV 2010. Ottawa, ON, May 2010.

[C23] **A. Couture-Beil**, R. Vaughan, and G. Mori. Selecting and Commanding Individual Robots in a Vision-Based Multi-Robot System. In *5th ACM/IEEE International Conference on Human-Robot Interaction (Video Session)*, HRI 2010. Osaka, Japan, March 2010. *accept rate:* $\frac{12}{23} = 52.2\%$.

[C22] **Y. Wang**, **G. Haffari**, S. Wang, and G. Mori. A Rate Distortion Approach for Semi-Supervised Conditional Random Fields. In *Neural Information Processing Systems*, NIPS 2009. Vancouver, BC, Canada, December 2009. *accept rate:* $\frac{263}{1105} = 23.8\%$.

[C21] **W. Yang**, **Y. Wang**, and G. Mori. Efficient Human Action Detection using Transferable Distance Function. In *Ninth Asian Conference on Computer Vision*, ACCV 2009. Xi'an, China, Sept. 2009. *accept rate:* $\frac{175}{670} = 26.1\%$.

[C20] **Y. Wang** and G. Mori. Max-Margin Hidden Conditional Random Fields for Human Action Recognition. In *IEEE Computer Vision and Pattern Recognition*, CVPR 2009. Miami, FL, June 2009. *accept rate:* $\frac{383}{1464} = 26.2\%$.

[C19] **M. Norouzi**, **M. Ranjbar**, and G. Mori. Stacks of Convolutional Restricted Boltzmann Machines for Shift-Invariant Feature Learning. In *IEEE Computer Vision and Pattern Recognition*, CVPR 2009. Miami, FL, June 2009. *accept rate:* $\frac{383}{1464} = 26.2\%$.

[C18] **M. Bayazit**, **A. Couture-Beil**, and G. Mori. Real-time Motion-based Gesture Recognition using the GPU. In *IAPR Conference on Machine Vision Applications*, MVA 2009. Yokohama, Japan, May 2009.

[C17] **Y. Wang** and G. Mori. Learning a discriminative hidden part model for human action recognition. In *Neural Information Processing Systems*, NIPS 2008. Vancouver, BC, Canada, December 2008. *accept rate:* $\frac{250}{1022} = 24.5\%$.

[C16] **Y. Wang** and G. Mori. Multiple Tree Models for Occlusion and Spatial Constraints in Human Pose Estimation. In *European Conference on Computer Vision*, ECCV 2008. Marseille, France, October 2008. *accept rate:* $\frac{243}{871} = 27.9\%$.

[C15] **G. Haffari**, **Y. Wang**, S. Wang, G. Mori, and F. Jiao. Boosting with Incomplete Information. In *International Conference on Machine Learning*, ICML 2008. Helsinki, Finland, July 2008. *accept rate:* $\frac{155}{583} = 27\%$.

[C14] **A. Fathi** and G. Mori. Action Recognition Using Mid-level Motion Features. In *IEEE Computer Vision and Pattern Recognition*, CVPR 2008. Anchorage, AK, June 2008. *accept rate:* $\frac{508}{1593} = 31.9\%$.

[C13] **A. Fathi** and G. Mori. Human Pose Estimation using Motion Exemplars. In *IEEE International Conference on Computer Vision*, ICCV 2007. Rio de Janeiro, Brazil, October 2007. *accept rate:* $\frac{281}{1190} = 23.6\%$.

[C12] **P. Sabzmeydani** and G. Mori. Detecting Pedestrians by Learning Shapelet Features. In *IEEE Computer Vision and Pattern Recognition*, CVPR 2007. Minneapolis, MN, June 2007. *accept rate:* $\frac{353}{1250} = 28.2\%$.

[C11] **A. Rova**, G. Mori, and L. M. Dill. One Fish, Two Fish, Butterfish, Trumpeter: Recognizing Fish in Underwater Video. In *IAPR Conference on Machine Vision Applications*, MVA 2007. Tokyo, Japan, May 2007. *accept rate:* $\frac{137}{220} = 62.3\%$.

[C10] **M. Moslemi Naeini**, **G. Dutton**, K. Rothley, and G. Mori. Action Recognition of Insects Using Spectral Clustering. In *IAPR Conference on Machine Vision Applications*, MVA 2007. Tokyo, Japan, May 2007. *accept rate:* $\frac{137}{220} = 62.3\%$.

[C9] **H. Jiang**, **Y. Wang**, M. Drew, Z. Li, and G. Mori. Unsupervised Discovery of Action Classes. In *IEEE Conf. on Computer Vision and Pattern Recognition*, CVPR 2006. New York, NY, June 2006. *accept rate:* $\frac{318}{1131} = 28.1\%$.

[C8] **X. Li**, G. Mori and H. Zhang. Expression-Invariant Face Recognition with Expression Classification. In *Third Canadian Conference on Computer and Robot Vision*, CRV 2006. Quebec City, PQ, June 2006. *accept rate:* $\frac{72}{113} = 62\%$.

[C7] **O. van Kaick** and G. Mori. Automatic Classification of Outdoor Images by Region Matching. In *Third Canadian Conference on Computer and Robot Vision*, CRV 2006. Quebec City, PQ, June 2006. *accept rate:* $\frac{72}{113} = 62\%$.

[C6] G. Mori. Guiding Model Search Using Segmentation. In *IEEE International Conference on Computer Vision*, ICCV 2005. Beijing, China, October 2005. *accept rate:* $\frac{244}{1230} = 19.8\%$.

[C5] G. Mori, X. Ren, A.A. Efros, and J. Malik. Recovering Human Body Configurations: Combining Segmentation and Recognition. In *IEEE Conf. on Computer Vision and Pattern Recognition*, CVPR 2004. Washington, D.C., June 2004. *accept rate:* $\frac{260}{873} = 29.8\%$.

[C4] A.A. Efros, A.C. Berg, G. Mori, and J. Malik. Recognizing Action at A Distance. In *IEEE International Conference on Computer Vision*, ICCV 2003. Nice, France, October 2003. *accept rate:* $\frac{199}{966} = 20.6\%$.

[C3] G. Mori and J. Malik. Recognizing Objects in Adversarial Clutter: Breaking a Visual CAPTCHA. In *IEEE Conf. on Computer Vision and Pattern Recognition*, CVPR 2003. Madison, WI, June 2003. *accept rate:* $\frac{209}{905} = 23.1\%$.

[C2] G. Mori and J. Malik. Estimating Human Body Configurations using Shape Context Matching. In *European Conference on Computer Vision*, ECCV 2002. Copenhagen, Denmark, May 2002. *accept rate:* $\frac{226}{600} = 37.7\%$.

[C1] G. Mori, S. Belongie, and J. Malik. Shape Contexts Enable Efficient Retrieval of Similar Shapes. In *IEEE Conf. on Computer Vision and Pattern Recognition*, CVPR 2001. Kauai, HI, December 2001. *accept rate:* $\frac{273}{920} = 29.7\%$.

Refereed Workshop Papers

[W10] **A. Vahdat**, **B. Gao**, **M. Ranjbar**, and G. Mori. A Discriminative Key Pose Sequence Model for Recognizing Human Interactions. *Eleventh IEEE International Workshop on Visual Surveillance (at ICCV)*, Barcelona, Spain, November 2011.

[W9] **T. Lan**, **Y. Wang**, G. Mori, and S. Robinovitch. Retrieving Actions in Group Contexts. *International Workshop on Sign Gesture Activity (at ECCV)*, Hersonissos, Greece, September 2010.

[W8] **W. Yang**, **Y. Wang** and G. Mori. Human Action Recognition from a Single Clip per Action. *2nd International Workshop on Machine Learning for Vision-based Motion Analysis (at ICCV)*. Kyoto, Japan, September 2009.

[W7] G. Mori, **M. Moslemi Naeini**, **A. Rova**, **P. Sabzmeydani**, and **J. Wawerla**. Monitoring Creatures Great and Small: Computer Vision Systems for Looking at Grizzly Bears, Fish, and Grasshoppers. *Workshop on Visual Observation and Analysis of Animal and Insect Behavior (at ICPR)*. Tampa, FL, December 2008.

[W6] **B. Chen**, **N. Nguyen**, and G. Mori. Geometric Blur in Human Pose Estimation. *IEEE Workshop on Applications of Computer Vision*, WACV 2008. Copper Mountain, CO, January 2008.

[W5] **B. Chen**, **W. Ma**, **Y. Tan**, A. Fedorova, and G. Mori. GreenRT: A Framework for the Design of Power-Aware Soft Real-Time Applications. *Workshop on the Interaction between Operating Systems and Computer Architecture*, WIOSCA 2008. Beijing, China, June 2008.

[W4] **Y. Wang** and G. Mori. Boosted Multiple Deformable Trees for Parsing Human Poses. *2nd Workshop on HUMAN MOTION Understanding, Modeling, Capture and Animation (at ICCV)*. Rio de Janeiro, Brazil, October 2007. *accept rate:* $\frac{11}{38} = 28.9\%$.

[W3] **Y. Wang**, **P. Sabzmeydani**, and G. Mori. Semi-Latent Dirichlet Allocation: A Hierarchical Model for Human Action Recognition. *2nd Workshop on HUMAN MOTION Understanding, Modeling, Capture and Animation (at ICCV)*. Rio de Janeiro, Brazil, October 2007. *accept rate:* $\frac{11}{38} = 28.9\%$.

[W2] **C. McIntosh**, G. Hamarneh, and G. Mori. Human Limb Delineation and Joint Position Recovery Using Localized Boundary Models. *IEEE Workshop on Motion and Video Computing*, WMVC 2007. Austin, TX, February 2007.

[W1] G. Mori and J. Malik. Estimating Human Body Configurations using Shape Context Matching. *Workshop on Models versus Exemplars in Computer Vision (at CVPR)*. Kauai, HI, December 2001.

Non-refereed Publications

[N7] **Z. F. Huang** and G. Mori. SFU at TRECVid 2010: Surveillance Event Detection. *TREC Video Retrieval Evaluation Workshop (TRECVID)*, November 2010.

[N6] **W. Yang**, **T. Lan**, and G. Mori. SFU at TRECVid 2009: Event Detection. *TREC Video Retrieval Evaluation Workshop (TRECVID)*, November 2009.

[N5] **W. Ma**, G. Hamarneh, G. Mori, K. Dinelle, and V. Sossi. Motion Estimation for Functional Medical Imaging Studies Using a Stereo Head Pose Tracking System. *IEEE Medical Imaging Conference*, Dresden, Germany, October 2008.

[N4] **C. Johnson** and G. Mori. Responsive Video-Based Motion Synthesis. ACM SIGGRAPH / Eurographics Symposium on Computer Animation (poster), San Diego, CA, August 2007.

[N3] G. Mori. Detecting and Localizing Human Figures. Ph.D. thesis, Computer Science Division, University of California at Berkeley, 2004.

[N2] G. Mori, A. Berg, A. Efros, A. Eden, and J. Malik. Video Based Motion Synthesis by Splicing and Morphing. *University of California, Berkeley Tech Report: UCB//CSD-04-1337*, June 2004.

[N1] G. Mori, L. Walker, S.R. Bharadwaj, C. Schor, J. Malik . Do object viewing strategies change when parts are ambiguous?. *European Conference on Visual Perception*, Paris, France, September 2003.

2.5 Invited Talks

[T24] Learning Structured Models for Recognizing Human Actions. *University of Waterloo*, Waterloo, ON, July 2011.

[T23] Learning Structured Models for Recognizing Human Actions. *CVPR Workshop on Gesture Recognition*, Colorado Springs, CO, June 2011.

[T22] Video Technology for Monitoring and Preventing Falls in Long-term Care. *RESNA Conference Workshop*, Toronto, ON, June 2011.

[T21] Learning Structured Models for Recognizing Human Actions. *Zhejiang University*, Hangzhou, China, April 2011.

[T20] Learning Structured Models for Recognizing Human Actions. *MacDonald, Dettwiler and Associates Ltd. (MDA)*, Richmond, BC, January 2011.

[T19] Recognizing Human Actions and Face Engagement for Human-Robot Interaction. *Keynote Speaker at First International Workshop on Computer Vision for Human-Robot Interaction (CVforHRI 2010) at CVPR*, San Francisco, CA, June 2010.

[T18] Learning Structured Models for Recognizing Human Actions. *Keynote Speaker at Seventh Canadian Conference on Computer and Robot Vision (CRV 2010)*, Ottawa, ON, June 2010.

[T17] Recognizing Human Actions from Video Data. *SFU Webcasts in Communication / IEEE Circuits and Systems Society Joint Chapter of the Vancouver/Victoria Sections Colloquium Series*, SFU, April 2009.

[T16] Recognizing Human Actions from Video Data. *CSMG/MoCSSy Colloquium Series*, SFU, January 2009.

[T15] Monitoring Creatures Great and Small: Computer Vision Systems for Looking at Grizzly Bears, Fish, and Grasshoppers. *Workshop on Visual Observation and Analysis of Animal and Insect Behavior (at ICPR)*, Tampa, FL, December 2008.

[T14] Boosted Multiple Deformable Trees for Parsing Human Poses. *EHuM2: 2-nd Workshop on Evaluation of Articulated Human Motion and Pose Estimation*, Minneapolis, MN, June 2007.

[T13] Detecting Pedestrians by Learning Shapelet Features and Boosted Multiple Deformable Trees for Parsing Human Poses. *Carnegie Mellon University VASC Seminar*, Pittsburgh, PA, May 2007.

[T12] Detecting Pedestrians by Learning Shapelet Features and Boosted Multiple Deformable Trees for Parsing Human Poses. *Toyota Technical Institute - Chicago*, Chicago, IL, May 2007.

[T11] Detecting Pedestrians by Learning Shapelet Features. *Tokyo Institute of Techonolgy*, Tokyo, Japan, May 2007.

[T10] Estimating Human Body Pose in Still Images. *BIRS 2006 Workshop on Mathematical Methods in Computer Vision*, Banff, AB, October 2006.

[T9] Looking at People... and Animals. *York University CVR & Computer Science Colloquium*, Toronto, ON, June 2006.

[T8] Human Body Pose Estimation in Static Images. *Canadian Institute for Advanced Research (CIAR) Neural Computation & Adaptive Perception*, Toronto, ON, July 2005.

[T7] Recognizing Human Figures and Actions. *UBC Vision and Robotics Group*, Vancouver, BC, October 2004.

[T6] Recognizing Human Figures and Actions. *Center for Scientific Computing*, Burnaby, BC, September 2004.

[T5] Recovering Human Body Configurations: Combining Segmentation and Recognition. *IEEE Conf. on Computer Vision and Pattern Recognition*, Washington, D.C., June 2004.

[T4] Recognizing Objects in Adversarial Clutter: Breaking a Visual CAPTCHA. *IEEE Conf. on Computer Vision and Pattern Recognition*, Madison, WI, June 2003.

[T3] Recognizing Objects in Adversarial Clutter: Breaking a Visual CAPTCHA. *Bay Area Vision Meeting*, U.C. Santa Cruz, June 2003.

[T2] Estimating Human Body Configurations using Shape Context Matching. *Workshop on Models versus Exemplars in Computer Vision (at CVPR01)*, Kauai, HI, December 2001.

[T1] Estimating Human Body Configurations using Shape Context Matching. *Bay Area Vision Meeting*, Compaq, Palo Alto, CA, October 2001.

2.6 Research Funding

The following summary table shows external research funding for which I was a principal investigator.

	Type	Source	Awarded	End	Annual	Total
G20	Operating	IARPA	2011	2016	$105,204	$526,023
G19	Operating	Google	2011	2011	$49,582	$49,582
G18	Operating	NSERC-EG	2011	2011	$25,000	$25,000
G17	Operating	NSERC-DG	2011	2016	$42,000	$210,000
G16	Operating	NSERC-EG	2011	2011	$24,778	$24,778
G15	Operating	NSERC-EG	2010	2010	$25,000	$25,000
G14	Operating	BCFRST-NRAS	2010	2013	$99,466	$298,398
G13	Operating	MITACS	2010	2010	$15,000	$15,000
G11	Operating	MITACS	2008	2009	$15,000	$15,000
G10	Operating	NVIDIA	2008	2009	$25,000	$25,000
G9	Operating	NSERC-DAS	2008	2011	$40,000	$120,000
G8	Operating	NSERC-DG	2008	2011	$24,000	$72,000
G7	Operating	NSERC-CRD	2007	2008	$30,000	$30,000
G5,G6	Operating	MITACS	2006	2007	$15,000	$15,000
G4	Operating	NSERC-CRD	2006	2007	$40,500	$40,500
G3	Equipment	CFI/BCKDF	2005	2006	$300,000	$300,000
G2	Operating	NSERC-DG	2005	2008	$19,000	$57,000
G1	Operating	SFU-PRG	2004	2005	$10,000	$10,000

Total: $1,558,281 Operating + $300,000 Equipment

The descriptions below detail grants in which I have played a major role, either as principal investigator or primary co-investigator. It does not include grants in which I was listed as collaborator. SFU start-up funds are also omitted.

Descriptions

[G20] IARPA ALADDIN. General Engine for Indexing Events (GENIE), SFU sub-contract from Kitware Inc. (prime). G. Mori: $526,023 (2011-2016)

[G19] Google Research Awards. Structured and Localized Tagging of Internet Videos. G. Mori: $49,582 (2011)

[G18] NSERC Engage Grants (EG). Optical character recognition in the wild (with Trusterra Technologies Inc.). G. Mori: $25,000 (2011)

[G17] NSERC Discovery Grant. Recognizing Human Figures and Actions. $210,000 ($42,000 per year, 2011-2016)

[G16] NSERC Engage Grants (EG). Developing a high-performance logo recognition algorithm for videos (with BroadbandTV Corp.). G. Mori: $24,778 (2011)

[G15] NSERC Engage Grants (EG). Content Retrieval and Visualization for Visual Effects (with Spin Pro VfX). G. Mori: $25,000 (2010)

[G14] BCFRST Natural Resources and Applied Sciences Research Team Program (NRAS). Automatic Detection and Tracking of Pedestrians for Transportation and Traffic Engineering. G. Mori and T. Sayed: $298,398 ($99,466 per year 2010-2013) (40%)

[G13] Accelerate BC (MITACS) Internship. Video Analytics Technology for Fishery Monitoring Services. F. Stefanus and G. Mori: $15,000 (2010)

[G12] CIHR Emerging Team Grant. CIHR Team in the Cause and Prevention of Falls in Residential Care. S. Robinovitch (PI) and 14 others. G. Mori (co-applicant) $1,500,000 ($300,000 per year 2009-2014) (5%)

[G11] Accelerate BC (MITACS) Internship. Face Recognition in Personal Photo Collections using Binary Quadratic Programming. M. Ranjbar and G. Mori: $15,000 (2008)

[G10] NVIDIA Professor Partnership. Efficient Pedestrian Detection on the GPU. $25,000 (2008)

[G9] NSERC Discovery Accelerator Supplement. Recognizing Human Figures and Actions. $120,000 ($40,000 per year, 2008-2010)

[G8] NSERC Discovery Grant. Recognizing Human Figures and Actions. $72,000 ($24,000 per year, 2008-2011)

[G7] NSERC Collaborative Research and Development (CRD). Semi-Automatic Video Motion Capture. G. Mori and T. Möller: $30,000 (2007) (100%)

[G6] MITACS Internship. Semi-Automatic Video Motion Capture. C. Johnson and G. Mori: $7,500 (2006)

[G5] MITACS Internship. Semi-Automatic Video Motion Capture. P. Sabzmeydani and G. Mori: $7,500 (2006)

[G4] NSERC Collaborative Research and Development (CRD). Semi-Automatic Video Motion Capture. G. Mori and T. Möller: $40,500 (2006) (100%)

[G3] Canadian Foundation for Innovation (CFI) and BC Knowledge Development Fund (BCKDF). Research Facility for Scientific Data Aquisition, Transmission and Storage (SDATS). R. Vaughan, G. Mori, A. Bulatov, F. Ergun, J. Liu, and J. Pei: $300,000 (2005) (25%)

[G2] NSERC Discovery Grant. Recognizing Human Figures and Actions. $57,000 ($19,000 per year, 2005-2007)

[G1] Simon Fraser University President's Research Grant: $10,000 (2004)

3 Teaching

3.1 Award

Excellence in Undergraduate Teaching Award 2006

This award is handed out annually by the SFU Undergraduate Computing Science Student Society (CSSS) to Computing Science faculty to recognize their efforts in teaching undergraduate courses in our department. I received this award in 2006.

3.2 Graduate Student Supervision

Summary of graduate student senior supervisory duties:

Ph.D.		M.Sc.		Total
Active	Complete	Active	Complete	
6	1	2	14	23

SFU operates on a trimester system. In the tables below -1, -2, and -3 denote Spring, Summer, and Fall terms respectively. My graduate students who have completed their degrees all did so in a timely fashion (avg. 5.9 trimesters for MSc students).

Senior Supervision – Graduated Students

Legend: Name, Degree, Tenure, Thesis/Project Title, Publications, Future positions

1. Yang Wang. Ph.D. 2005-3 to 2009-2. Learning Structured Models for Human Actions and Poses. [J6, J5, C30, C29, C27, C28, C26, C21, C20, C17, C16, C15, C9, B2, W8, W4, W3]. Next NSERC Postdoctoral Fellowship at University of Illinois at Urbana-Champaign.

14. Pengfei Yu. M.Sc. 2009-3 to 2011-2. Image Classification Using Latent Spatial Pyramid Matching. Next Software Test Engineer at Microsoft.

13. Bo Gao. M.Sc. 2009-3 to 2011-2. Exemplar-Based Human Interaction Recognition: Features And Key Pose Sequence Model. [W10]. Next Software Engineer at Trusterra Inc.

12. Arash Vahdat[2]. M.Sc. 2009-3 to 2011-1. A Key Pose Model For Human Interaction Recognition And Color From Gray By Optimized Color Ordering. [W10]. Next SFU Ph. D. student.

11. Ferdinand Stefanus[3]. M.Sc. 2009-1 to 2010-3. Automatic Pedestrian Detection and Tracking with a Multiple-Cue Max-Margin Framework. [C25]. Next MacDonald, Dettwiler and Associates Ltd. (MDA).

10. Tian Lan. M.Sc. 2009-1 to 2010-2. Beyond Actions: Discriminative Models For Contextual Group Activities. [C30, N6, W9]. Next SFU Ph.D. student.

9. Bahman Yari Saeed Khanloo. M.Sc. 2008-3 to 2010-2. Combining Simple Trackers Using Structural SVMs For Offline Single Object Tracking. [C25]. Next Aalto University Ph.D. student.

8. Weilong Yang. M.Sc. 2008-3 to 2010-1. Transfer Learning for Human Action Recognition. [C26, C21, B2, W8, N6]. Next SFU Ph.D. student.

7. Mohammad Norouzi. M.Sc. 2008-1 to 2009-3. Convolutional Restricted Boltzmann Machines for Feature Learning. [C19]. Next University of Toronto Ph.D. student.

[2] co-supervised with Prof. Mark Drew
[3] co-supervised with Prof. Ze-Nian Li

6. William Ma[4]. M.Sc. 2007-3 to 2009-2. Motion Estimation For Functional Medical Imaging Studies Using A Stereo Video Head Pose Tracking System. [W5, N5]. Next ASM Pacific.

5. Alireza Fathi. M.Sc. 2006-3 to 2008-2. Efficient Human Figure Tracking Using Motion Exemplars. [C14, C13]. Next Georgia Tech Ph.D. student.

4. Maryam Moslemi. M.Sc. 2006-1 to 2007-2. Clustering and Visualizing Actions of Humans and Animals Using Motion Features. [C10]. Next M.Sc. student at University of Illinois at Urbanan-Champaign, now Salesforce.com.

3. Christopher Johnson. M.Sc. 2005-3 to 2007-2. Responsive Video-Based Motion Synthesis Using Motion Graphs. [N4]. Next Blast Radius.

2. Andy Rova[5]. M.Sc. 2005-1 to 2007-1. Eigen-CSS Shape Matching And Recognizing Fish In Underwater Video. [C11].

1. Payam Sabzmeydani. M.Sc. 2004-3 to 2006-3. Detecting Pedestrians in Still Images Using Learned Shape Features. [J4, C12, W3]. Next Koolhaus Games, now AirG.

Senior Supervision – Currently Active Students

	Name	Degree	Thesis/Project Title	Pubs.	Began
1.	Mani Ranjbar[6]	Ph.D.	Human Figure Segmentation Using Texture Cues	[C25, C19, C28, W10]	2008-1
2.	Weilong Yang	Ph.D.	Human Action Recognition	[J7, C33, C30, C26, C21, B2, W8, N6]	2010-2
3.	Tian Lan	Ph.D.	Detecting Unusual Events in Surveillance Video	[J7, C34, C30, W9, N6]	2010-3
4.	Hossein Hajimirsadeghi	Ph.D.	TBD		2011-2
5.	Nataliya Shapovalova	Ph.D.	TBD		2011-3
6.	Arash Vahdat	Ph.D.	TBD		2011-3
7.	Brian Milligan[7]	M.Sc.	Human-robot interaction	[C31]	2009-3
8.	Zhi Feng Huang	M.Sc.	TBD	[C33, N7]	2010-1

Visiting Students

	Name	Institution	Project Title	Tenure
1.	Antoine Boiteau	Université de Tours	Motion-based Human Action Recognition	2009-2
2.	Louis-Kenzo Cahier	University of Nice Sophia-Antipolis	Experiments in Pedestrian Tracking	2008-2

[4]co-supervised with Prof. Ghassan Hamarneh
[5]co-supervised with Prof. Mark Drew
[6]co-supervised with Prof. Ze-Nian Li
[7]co-supervised with Prof. Richard Vaughan

SFU Supervisory Committee Membership

	Name	Degree	Role	Status	Completed
1.	Baskaran Sankaran	Ph.D.	Supervisor	Active	–
2.	Pradeep Reddy	Ph.D.	Supervisor	Active	–
3.	Chris McIntosh	Ph.D.	SFU Examiner	Active	–
4.	Denny Chen Dai	Ph.D.	Supervisor	Active	–
5.	Mehrdad Oveisi	Ph.D.	SFU Examiner	Active	–
6.	Majid Razmara	Ph.D.	SFU Examiner	Active	–
7.	Sebastian Schmidt	M.Sc.	SFU Examiner	Completed	2011-2
8.	Paul Wighton	Ph.D.	Supervisor	Completed	2011-2
9.	Porus Patell	M.Sc.	Supervisor	Completed	2011-1
10.	Matt Olson	Ph.D.	SFU Examiner	Completed	2011-1
11.	Abbas Sadat	M.Sc.	Supervisor	Completed	2010-3
12.	Ann Clifton	M.Sc.	SFU Examiner	Completed	2010-2
13.	Andrei Missine	Ph.D.	SFU Examiner	Completed	2010-2
14.	Ali Kamali	M.Sc.	Supervisor	Completed	2010-2
15.	Ziming Zhang	M.Sc.	SFU Examiner	Completed	2010-1
16.	Alex Couture-Beil	M.Sc.	Supervisor	Completed	2010-1
17.	Ajeet Grewal	M.Sc.	SFU Examiner	Completed	2009-3
18.	Nasim Hajari	M.Sc.	Supervisor	Completed	2009-3
19.	Gholamreza Haffari	Ph.D.	Supervisor	Completed	2009-2
20.	Farhad Hormozdiari	M.Sc.	SFU Examiner	Completed	2009-2
21.	Jiawei Huang	M.Sc.	SFU Examiner	Completed	2009-2
22.	Gustavo Frigo	M.Sc.	SFU Examiner	Completed	2009-2
23.	Muntaseer Salahuddin	M.Sc.	SFU Examiner	Completed	2009-1
24.	Brian Fraser	Ph.D.	SFU Examiner	Completed	2009-1
25.	Yan Lu	M.A.Sc.	SFU Examiner	Completed	2008-2
26.	Omer Ishaq	M.Sc.	Supervisor	Completed	2008-1
27.	Pawel Zebrowski	M.Sc.	Supervisor	Completed	2007-2
28.	Pooya Karimian	M.Sc.	Supervisor	Completed	2007-2
29.	Xiaoxing Li	M.Sc.	Supervisor	Completed	2006-3
30.	Varun Jain	M.Sc.	Supervisor	Completed	2006-2
31.	Cheng Lu	Ph.D.	SFU Examiner	Completed	2006-2
32.	Hao Jiang	Ph.D.	SFU Examiner	Completed	2006-2
33.	Roozbeh Mottaghi	M.A.Sc.	SFU Examiner	Completed	2006-1
34.	Lilong Shi	M.Sc.	Supervisor	Completed	2005-2
35.	Mauricio Zuluaga	M.Sc.	SFU Examiner	Completed	2005-1
36.	Ye Lu	Ph.D.	SFU Examiner	Completed	2005-1

External Examiner

	Name	Degree	Institution	Thesis/Project Title	Completed
1.	G. Gill	Ph.D.	McGill University	Building a model for a 3D object class in a low dimensional space for object detection	Spring 2009
2.	A. Shabani	Ph.D.	University of Waterloo	Human Action Recognition in Video	Summer 2011

3.3 Postdoctoral Fellow Supervision

1. Kevin Cannons. 2011-3 to present. Human action recognition.

3.4 Undergraduate Student Supervision

I have supervised research projects by undergraduate students working under the NSERC Undergraduate Student Research Award (USRA) program, directed studies courses (CMPT 415/416), and directly via research assistantships (RA).

List of Undergraduates Supervised at Research

	Name	Program	Notes	Tenure
1.	Youyou Yang	RA		2011-3
2.	Wesley May	NSERC USRA	next Toronto MSc	2011-2
3.	Ben Reilly	RA	next Toronto MSc	2011-1
4.	Jia Sun	RA	SFU BSc	2011-1
5.	Shinsuke Murata[8]	RA	SFU BSc	2010-3
6.	Zhi Feng Huang	volunteer	next SFU MSc	2009-2
7.	Aditya Ramesh	NSERC USRA	next Stanford MSc	2009-2
8.	Mark Bayazit	NSERC USRA; RA	[C18], next ShipSmartly.com	2008-2 to 2009-1
9.	Angelica Lim	NSERC USRA	Monbukagakusho at Kyoto Univ.	2008-1
10.	Bo Chen	CMPT 415; RA	[W6,W5], next UBC MSc, Caltech PhD	2007-1 to 2008-2
11.	Nhan Nguyen	CMPT 415; 416	[W6], next UBC MSc	2007-1 to 2007-2
12.	Jennifer Fernquist	NSERC USRA	next UBC MSc	2006-2
13.	Chris Lundgren	NSERC USRA	next Safe Software	2006-2
14.	Russell Warneboldt	CMPT 415	next SFU MSc, Electronic Arts	2005-1
15.	Arseniy Akuney	NSERC USRA	next UBC MSc	2005-2
16.	Ben Hull	CMPT 415		2005-2

3.5 Course Teaching at Simon Fraser University

For each of my courses I maintain a webpage with lecture slides, homework assignments, and other course material. These webpages are linked from my webpage: `http://www.cs.sfu.ca/~mori`.

Summary of SFU teaching schedule with final enrollments

Legend:
1 Spring trimester: Jan. to Apr.
2 Summer trimester: May to Aug.
3 Fall trimester: Sep. to Dec.

[8] Co-supervised with Prof. Torsten Moller

		2004	2005			2006			2007			2008			2009			2010		Totals	
	Course	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	UG	Grad
(1)	CMPT 225																	41		41	
(2)	CMPT 310	34		34	39			51			57			66						281	
(3)	CMPT 419												28				8			36	
(3)	CMPT 726												32				55				87
(4)	CMPT 882	6			12			10			12					17					57
(5)	CMPT 888																		14		14
(6)	CMPT 415/6		1	1					2	1										5	
																			Totals:	363	158

Course descriptions

1. **CMPT 225 - Data Structures and Programming**: This is the core second year computer science course in our undergraduate program. It explores ideas of data and program organization that allow complex tasks to be solved in simple and elegant ways. In order to manage the complexity of programs, it presents program design and organization ideas such as abstract data types, data structures and recursion. Standard data structures such as linked lists, binary search trees, red-black trees, hash tables, and heaps are presented. Practical experience of these ideas is illustrated by considering their applications and implementations in Java and C++.

2. **CMPT 310 - Introduction to Artificial Intelligence**: This course is an upper-division AI survey course. In my offering of this course I provide students with an introduction to important ideas in four aspects of AI: search (e.g. DFS, BFS, IDS, A^*), logic (first-order logic), uncertainty (probability, Bayesian networks, hidden Markov models), and machine learning (e.g. decision trees, neural nets). My programming assignments include competitions that have proven very popular with the students – a tournament of automatic backgammon-playing agents written by students, a hand-written digit recognition contest.

3. **CMPT 419/726 - Machine Learning**: This is a graduate course on machine learning that I created with Prof. Sarkar and Prof. Schulte to fill a hole in SFU's graduate curriculum. Machine learning techniques are part of the standard toolbox of artificial intelligence, and are essential for areas including computer vision, natural language processing, data mining, bioinformatics, and robotics. Its first offering, that I taught in Summer 2008, attracted 60 students (32 grads and 28 undergrads). The second offering, in Fall 2009, had an enrollment of 55 grads and 8 undergrads, a total of 87 grads over two years. The total number of students enrolled in the CS grad program is approximately 200.

   I developed this course based on Chris Bishop's textbook *Pattern Recognition and Machine Learning*. We covered techniques in the standard machine learning toolkit: generalized linear models (regression, classification), kernel density estimation, nearest-neighbour, neural networks, support vector machines, graphical models, sampling methods, mixture models, expectation-maximization, combining models (boosting, mixture of experts), dimensionality reduction. Knowledge of this set of tools enables students to conduct research in the aforementioned fields for which machine learning is the lingua franca.

4. **CMPT 882 - Recognition Problems in Computer Vision**: This graduate course is an 800-level seminar-style course. The goal is to introduce students to important problems and approaches in recognition, especially object recognition and looking at people challenges. We discuss classical and recent research papers on these topics. The term's work culminates in a course project in which students gain in-depth knowledge about solving a recognition problem. Many of these course projects have become conference publications.

5. **CMPT 888 - Human Activity Recognition**: This graduate course is an 800-level seminar-style course. The goal is to teach students the state of the art in vision-based human activity recognition. We cover the major approaches in the literature, for the most part by reading and discussing research papers. Students present recent research papers and carry out a course project exploring an approach to activity recognition in detail.

6. **CMPT 415/416 - Special Research Projects**: I have supervised 5 undergraduate directed studies courses, denoted by CMPT 415/416. These projects ranged from implementing existing research papers (e.g. Warneboldt implemented Kenji Okuma's ECCV 2004 paper on coupled detection and tracking) under my supervision, to conducting novel research (e.g. Chen and Nguyen's work on pose estimation that we published at WACV, a reputable regular vision workshop).

3.6 Summary of Student Course Evaluations

Instructor Evaluation

(average over all offerings)	Undergraduate Courses [0 = poor, 4 = excellent]			Graduate Courses [0 = poor, 4 = excellent]		
	CMPT 225	CMPT 310	CMPT 419	CMPT 726	CMPT 882	CMPT 888
Organization and Preparation	3.72	3.74	3.89	3.90	3.81	3.90
Teaching Ability	3.93	3.79	3.88	4.00	3.98	4.00

Course Evaluation

Course Number	(average over all offerings of each course) Difficulty [0 = too difficult, 4 = too easy]	Rating [0 = poor, 4 = excellent]
CMPT 225	1.76	3.30
CMPT 310	1.53	3.44
CMPT 419	1.20	3.25
CMPT 726	1.52	3.47
CMPT 882	1.75	3.89
CMPT 888	1.60	4.00
(overall average score)	1.57	3.62

3.7 Other Teaching

- **Statistical and Structural Recognition of Human Actions - Tutorial at European Conference on Computer Vision (ECCV) 2010, Ivan Laptev and Greg Mori**: This course gave an introduction into novel trends in statistical and structural action recognition and illustrated ideas with examples of successful methods from recent literature. In particular, we covered bag-of-features action recognition and discussed alternative local feature representations and their extensions. We considered current issues in human actions datasets and addressed weakly supervised and unsupervised approaches for human actions. We presented advances in structural modeling of human poses and covered recent structured learning methods for action recognition. While this course mostly covered action recognition in video, we also discussed action recognition from still images such as in the Action Classification Taster Competition of PASCAL VOC 2010.

4 Service

4.1 Service To Simon Fraser University

I have served on a variety of regular departmental committees and participated in a number of ad-hoc committees. In addition, I have played an active role in undergraduate recruitment work.

University Committee

- Senate Graduate Awards Adjudication Committee, SGAAC AY 2009-2010

Departmental Committees

- CS Strategic Research Committee AY 2009-2010
- CS Director Search Consultation Committee AY 2009-2010
- CS Distinguished Lecture Series Committee AY 2009-2010
- Graduate Program Committee AY 2004-2005, 2008-2009
- Undergraduate Program Committee AY 2006-2007, 2007-2008
- Teaching Quality Committee AY 2006-2007
- Social Committee AY 2006-2007
- Faculty Search Committee AY 2005-2006
- Led ad-hoc committee for FAS file server purchase 2004-2006

Recruitment work

- SFU Undergraudate Orientation Faculty Mentor 2009
- SFU Graduate Orientation Faculty Panelist 2009
- SFU Open House presenter 2006, 2008
- High school visit presenter 2007, 2008
- Scientific I presenter 2006
- FAS Open House presenter 2006

4.2 Service to the Academic Community

I serve as an Associate Editor of IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI), the top journal in computer vision. I regularly serve on the program committees of the major computer vision conferences (CVPR, ICCV, ECCV). I was the program co-chair (for computer vision) of the Canadian Conference on Computer and Robot Vision in 2006 and 2007. I also review research grant proposals for Canadian granting councils (NSERC, CHRP), and was invited as a grant review panelist to the US National Science Foundation in 2008 and 2009. A listing of service duties appears below.

Journal Editor:

- Associate Editor, IEEE Transactions on Pattern Analysis and Machine Intelligence, T-PAMI 2010-current
- Guest Editor, Journal of Image and Vision Computing, Special Issue on Computer and Robot Vision 2007

Conference Program Chair

- Canadian Conference on Computer and Robot Vision, CRV 2006, 2007

Program Committee Member:

- IEEE Computer Vision and Pattern Recognition, CVPR 2005-2011
- IEEE International Conference on Computer Vision, ICCV 2007, 2009, 2011
- European Conference on Computer Vision, ECCV 2006, 2008, 2010
- IAPR International Conference on Pattern Recognition, ICPR 2008, 2010
- Asian Conference on Computer Vision, ACCV 2010
- IEEE Conference on Automatic Face and Gesture Recognition, FG 2011
- IAPR Conference on Machine Vision Applications, MVA 2009, 2011
- International Joint Conference on Artificial Intelligence, IJCAI 2009
- Canadian Conference on Computer and Robot Vision, CRV 2005, 2008, 2009, 2010, 2011
- British Machine Vision Conference, BMVC 2008, 2009, 2010, 2011
- IEEE Workshop on Applications of Computer Vision, WACV 2011
- IEEE Workshop on Motion and Video Computing, WMVC 2009, 2011
- Second International Workshop on Stochastic Image Grammars 2011
- CVPR Fine-Grained Visual Categorization Workshop 2011
- CVPR Gesture Recognition Workshop 2011
- CVPR International Workshop on Human Activity Understanding from 3D Data 2011
- Workshop on Person Oriented Vision 2011
- International Conference on Computer Vision Theory and Applications 2008
- IEEE International Conference On Advanced Video and Signal Based Surveillance 2008
- International Workshop on Machine Learning for Vision-based Motion Analysis, MLVMA 2008, 2009, 2011
- Workshop on Computer Vision Based Analysis in Sport Environments 2006
- First International Workshop on Multimedia Analysis of User Behaviour and Interactions 2008
- First International Workshop on Video Mining 2008
- First Workshop on Egocentric Vision 2009
- First International Workshop on Stochastic Image Grammars 2009
- First International Workshop on Visual Scene Understanding 2009
- Doctoral Spotlight Committee CVPR 2009
- First International Workshop on Computer Vision for Human-Robot Interaction 2010
- Visual Observation and Analysis of Animal and Insect Behavior, VAIB 2010
- Third Workshop on Human Motion: Understanding, Modeling, Capture and Animation 2010

Journal Reviewer:

- IEEE Transactions on Pattern Analysis and Machine Intelligence, T-PAMI 2004-2010
- International Journal of Computer Vision, IJCV 2005, 2007-2011
- Computer Vision and Image Understanding, CVIU 2006, 2007, 2008, 2010
- IEEE Transactions on Visualization and Computer Graphics 2008, 2009
- IEEE Transactions on Robotics 2008, 2009
- IEEE Transactions on Multimedia 2004, 2010
- IEEE Transactions on Image Processing 2006, 2010
- IEEE Transactions on Systems, Man and Cybernetics Part C 2008, 2009
- Image and Vision Computing 2006, 2008, 2009, 2011
- IEEE Security & Privacy 2008, 2009
- International Journal of Image and Graphics 2006

- IEEE Transactions on Circuits and Systems for Video Technology 2007
- IEEE Transactions on Biomedical Engineering 2006
- IEEE Computer Graphics and Applications 2007
- Journal of Mathematical Imaging and Vision 2007
- Pattern Recognition Letters 2007
- Neurocomputing 2007
- Journal of Electronic Imaging 2003
- Computer-Aided Design 2004
- Computer Graphics Forum 2004, 2005

Conference Reviewer:

- Neural Information Processing Systems, NIPS 2009, 2010
- AI & Statistics, AISTATS 2011
- Eurographics 2009
- IEEE International Conference on Robotics and Automation, ICRA 2008, 2009
- ACM SIGGRAPH 2004, 2005, 2006, 2009, 2010
- European Conference on Computer Vision, ECCV 2002, 2004
- IEEE Conference on Computer Vision and Pattern Recognition, CVPR 2004
- IEEE International Conference on Computer Vision, ICCV 2005
- Advanced Concepts for Intelligent Vision Systems 2006, 2007
- Workshop on Analysis of Functional Medical Images 2008
- Transportation Research Board (TRB) Annual Meeting 2009, 2010, 2011, 2012
- Eurographics Symposium on Rendering 2011

Grant Proposal Reviewer:

- NSERC Collaborative Research and Development 2010
- NSERC Collaborative Health Research Projects 2009, 2010, 2011
- NSERC Discovery Grant 2008, 2009, 2010
- US National Science Foundation IIS Panelist 2008, 2009
- Spain Ministry of Science and Innovation 2009
- Mathematics of Information Technology and Complex Systems MITACS 2007, 2008, 2009, 2011

September 30, 2011