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APPOINTMENT	Associate Professor Computer Science and Engineering SUNY at Buffalo <i>Full list of appointments begins on page 16</i>	BUFFALO, NY 8/2013 - PRESENT
RESEARCH FOCUS	Bridging from data to understanding and natural descriptions, primarily in video understanding problems, by investigating the role of hierarchical, compositional and ontological structures to model real-world phenomena with massive, partially labeled data available and by incorporating prior high-level knowledge and humans in both learning and inference.	
RESEARCH AREAS	Computer Vision Medical Imaging	Data Sciences and Mining (Probabilistic) Ontology Robot Perception Computational Finance
EDUCATION	University of California, Los Angeles Post-Doc in Neuroscience and Statistics ADVISORS: Dr. Alan Yuille and Dr. Arthur Toga The Johns Hopkins University Ph.D. in Computer Science ADVISOR: Dr. Gregory D. Hager DISSERTATION TITLE: <i>"Techniques for Vision-Based Human-Computer Interaction"</i> <i>Full list of education begins on page 16</i>	LOS ANGELES, CA 2006-2007 BALTIMORE, MD 6/2006
DISTINCTIONS	Best Paper Award at ECDM 2012 for <i>Efficient Max-Margin Metric Learning</i> SUNY at Buffalo Young Investigator Award Army Research Office Young Investigator Award <i>Guidance By Semantics-High-Level Visual Inference to Improve Vision-based Mobile Robot Localization</i> National Science Foundation CAREER Award <i>Generalized Image Understanding with Probabilistic Ontologies and Dynamic Adaptive Graph Hierarchies</i> DARPA Computer Science Study Group <i>A distinction awarded to junior faculty for revolutionary activities in defense-relevant research</i> SUNY at Buffalo STOR Visionary Innovator <i>Awarded for licensing technology to industry.</i> Best New Development <i>UCLA Laboratory of Neuroimaging, CCB AHM Segmentation Contest</i> Link Foundation Fellowship in Advanced Simulation and Training James D Rozics Computer Science Medal - Loyola College in Maryland <i>Awarded to the computer science student ranked first upon graduation</i> Upsilon Pi Epsilon Scholarship , Computer Science Honors Society Hauber Summer Science Research Fellowship - Loyola College in Maryland	2012 2011 2010 2009 2009 2009 2006 2003 2000 1998 1998

Qualifiers added where known: Impact Factor (IF), h5-Index (h5) provided by Google Scholar.

- J17. C. Xu, R. F. Doell, S. J. Hanson, C. Hanson, and **J. J. Corso**. A study of actor and action semantic retention in video supervoxel segmentation. *International Journal of Semantic Computing*, 2014. (In Press) Selected as a Best Paper from ICSC; an earlier version appeared as arXiv:1311.3318. h5: 13 (IJSC)
- J16. P. Agarwal, S. Kumar, J. Ryde, **J. J. Corso**, and V. N. Krovi. Estimating dynamics on-the-fly using monocular video for vision-based robotics. *IEEE/ASME Transactions on Mechatronics*, 2014. (In Press). IF: 3.135; h5: 37 (IEEE/ASME TMECH)
- J15. W. Wu, A. Y. C. Chen, L. Zhao, and **J. J. Corso**. Brain tumor detection and segmentation in a CRF (conditional random fields) framework with pixel-pairwise affinity and superpixel-level features. *International Journal of Computer Aided Radiology and Surgery*, 9(2):241–253, 2014. IF: 1.364; h5: 17 (IJARS)
- J14. S. Oh, S. McCloskey, I. Kim, A. Vahdat, K. Cannons, H. Hajimirsadeghi, G. Mori, A. G. A. Perera, M. Pandey, and **J. J. Corso**. Multimedia event detection with multimodal feature fusion and temporal concept localization. *Machine Vision and Applications*, 25:49–69, 2014. IF: 1.009; h5: 21 (MVA)
- J13. J. A. Delmerico, P. David, and **J. J. Corso**. Building facade detection, segmentation, and parameter estimation for mobile robot stereo vision. *Image and Vision Computing*, 31(11):841–852, 2013. IF: 1.952; h5: 42 (IVC)
- J12. Y. Miao and **J. J. Corso**. Hamiltonian streamline guided feature extraction with application to face detection. *Journal of Neurocomputing*, 120:226–234, 2013. Early version appears as arXiv.org tech report 1108.3525v1. IF: 1.58; h5: 44 (NEUCOM)
- J11. **J. J. Corso**. Toward parts-based scene understanding with pixel-support parts-sparse pictorial structures. *Pattern Recognition Letters: Special Issue on Scene Understanding and Behavior Analysis*, 34(7):762–769, 2013. Early version appears as arXiv.org tech report 1108.4079v1. IF: 1.034; h5: 43 (PRL)
- J10. R. S. Alomari, **J. J. Corso**, V. Chaudhary, and G. Dhillon. Toward a clinical lumbar CAD: Herniation diagnosis. *International Journal of Computer Aided Radiology and Surgery*, 6(1):119–126, 2011. IF: 1.364; h5: 17 (IJARS)
- J9. R. S. Alomari, **J. J. Corso**, and V. Chaudhary. Labeling of lumbar discs using both pixel- and object-level features with a two-level probabilistic model. *IEEE Transactions on Medical Imaging*, 30(1):1–10, 2011. IF: 4.027; h5: 48 (IEEE TMI)
- J8. P. B. Noël, A. Walczak, J. Xu, **J. J. Corso**, K. R. Hoffmann, and S. Schafer. GPU-based cone beam computed tomography. *Computer Methods and Programs in Biomedicine*, 98(3):271–277, 2010. IF: 1.589; h5: 29 (CMPB)
- J7. R. S. Alomari, **J. J. Corso**, V. Chaudhary, and G. Dhillon. Computer-aided diagnosis of lumbar disc pathology from clinical lower spine MRI. *International Journal of Computer Aided Radiology and Surgery*, 5(3):287–293, 2010. IF: 1.364; h5: 17 (IJARS)
- J6. **J. J. Corso** and G. D. Hager. Image Description with Features that Summarize. *Computer Vision and Image Understanding*, 113:446–458, 2009. IF: 2.202; h5: 39 (CVIU)
- J5. **J. J. Corso**, G. Ye, D. Burschka, and G. D. Hager. A Practical Paradigm and Platform for Video-Based Human-Computer Interaction. *IEEE Computer*, 42(5):48–55, 2008. IF: 2.111; h5: 49 (IEEE Computer)
- J4. **J. J. Corso**, E. Sharon, S. Dube, S. El-Saden, U. Sinha, and A. Yuille. Efficient Multilevel Brain Tumor Segmentation with Integrated Bayesian Model Classification. *IEEE Transactions on Medical Imaging*, 27(5):629–640, 2008. IF: 4.027; h5: 48 (IEEE TMI)
- J3. **J. J. Corso**, G. Ye, and G. D. Hager. Analysis of Composite Gestures with a Coherent Probabilistic Graphical Model. *Virtual Reality*, 8(4):242–252, 2005. IF: 0.341; h5: 13 (VR)
- J2. D. Burschka, **J. J. Corso**, M. Dewan, W. Lau, M. Li, H. Lin, P. Marayong, N. Ramey, G. D. Hager, B. Hoffman, D. Larkin, and C. Hasser. Navigating Inner Space: 3-D Assistance for Minimally Invasive Surgery. *Robotics and Autonomous System*, 2005. IF: 1.615; h5: 37 (RAS)
- J1. G. Ye, **J. J. Corso**, D. Burschka, and G. D. Hager. VICs: A Modular HCI Framework Using Spatio-Temporal Dynamics. *Machine Vision and Applications*, 16(1):13–20, 2004. IF: 1.009; h5: 21 (MVA)

CONFERENCE PROCEEDINGS (PEER-REVIEWED)

Qualifiers added where known: Acceptance Rate* (AR) with * indicating historical, not year-specific rate, h5-Index (h5) provided by Google Scholar.

- 2014
- C81. S. Kumar, V. Dhiman, and **J. J. Corso**. Learning compositional sparse models of bimodal percepts. In *Proceedings of AAAI Conference on Artificial Intelligence*, 2014. AR: 28%; h5: 41 (AAAI)
- C80. C. Xiong, S. McCloskey, and **J. J. Corso**. Latent domains for visual domain adaptation. In *Proceedings of AAAI Conference on Artificial Intelligence*, 2014. AR: 28%; h5: 41 (AAAI)
- C79. W. Chen, C. Xiong, and **J. J. Corso**. Actionness ranking with lattice conditional ordinal random fields. In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, 2014. AR: 29%; h5: 106 (CVPR)
- C78. V. Dhiman, A. Kundu, F. Dellaert, and **J. J. Corso**. Modern MAP inference methods for accurate and faster occupancy grid mapping on higher order factor graphs. In *Proceedings of International Conference on Robotics and Automation*, 2014. AR: 48%; h5: 55 (ICRA)
- C77. S. Kumar, M. S. Narayanan, P. Singhal, **J. J. Corso**, and V. Krovi. Surgical tool attributes from monocular video. In *Proceedings of IEEE International Conference on Robotics and Automation*, 2014. AR: 48%; h5: 55 (ICRA)
- C76. C. Xiong, W. Chen, G. Chen, D. Johnson, and **J. J. Corso**. Adaptive quantization: An information-based approach to learning binary codes. In *Proceedings of SIAM International Conference on Data Mining*, 2014. AR*: 15%; h5: 33 (SDM)
- 2013
- C75. C. Xu, S. Whitt, and **J. J. Corso**. Flattening supervoxel hierarchies by the uniform entropy slice. In *Proceedings of the IEEE International Conference on Computer Vision*, 2013. AR*: 20%; h5: 60 (ICCV)
- C74. C. Xu, R. F. Doell, S. J. Hanson, C. Hanson, and **J. J. Corso**. Are actor and action semantics retained in video supervoxel segmentation? In *Proceedings of IEEE International Conference on Semantic Computing*, 2013. AR*: 30% (ICSC)
- C73. V. Dhiman, J. Ryde, and **J. J. Corso**. Mutual localization: Two camera relative 6-dof pose estimation from reciprocal fiducial observation. In *Proceedings of International Conference on Intelligent Robots and Systems*, 2013. AR*: 43%; h5: 40 (IROS)
- C72. S. Kumar, M. Narayanan, P. Singhal, **J. J. Corso**, and V. Krovi. Product of tracking experts for surgical tool visual tracking. In *IEEE Conference on Automation Science and Engineering*, 2013. h5: 13 (CASE)
- C71. L. Zhao, W. Wu, and **J. J. Corso**. Semi-automatic brain tumor segmentation by constrained MRFs using structural trajectories. In *Proceedings of Medical Image Computing and Computer Aided Intervention*, 2013. AR*: 30%; h5: 30 (MICCAI)
- C70. P. Das, C. Xu, R. F. Doell, and **J. J. Corso**. A thousand frames in just a few words: Lingual description of videos through latent topics and sparse object stitching. In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, 2013. AR*: 25%; h5: 106 (CVPR)
- C69. D. M. Johnson, C. Xiong, J. Gao, and **J. J. Corso**. Comprehensive cross-hierarchy cluster agreement evaluation. In *Proceedings of AAAI Conference on Artificial Intelligence (Late-Breaking Papers Track)*, 2013. AR: 43%; h5: 41 (AAAI)
- C68. C. Xiong, D. M. Johnson, and **J. J. Corso**. Uncertainty reduction for active image clustering via a hybrid global-local uncertainty model. In *Proceedings of AAAI Conference on Artificial Intelligence (Late-Breaking Papers Track)*, 2013. AR: 43%; h5: 41 (AAAI)
- C67. N. Coffee, J. Gawley, C. W. Forstall, W. J. Scheirer, D. Johnson, **J. J. Corso**, and B. Parks. Modelling the interpretation of literary allusion with machine learning techniques. In *Proceedings of Digital Humanities*, 2013. (DH)
- C66. P. Das, R. K. Srihari, and **J. J. Corso**. Translating related words to videos and back through latent topics. In *Proceedings of Sixth ACM International Conference on Web Search and Data Mining*, 2013. AR: 19%; h5: 48 (WSDM)
- C65. J. A. Delmerico, D. Baran, P. David, J. Ryde, and **J. J. Corso**. Ascending stairway modeling from dense depth imagery for traversability analysis. In *Proceedings of IEEE International Conference on Robotics and Automation*, 2013. AR*: 45%; h5: 55 (ICRA)
- C64. R. S. Alomari, **J. J. Corso**, V. Chaudhary, and G. Dhillon. Lumbar spine disc herniation diagnosis with a joint shape model. In *Proceedings of Medical Image Computing and Computer*

2012

- C63. C. Xu, C. Xiong, and **J. J. Corso**. Streaming hierarchical video segmentation. In *Proceedings of European Conference on Computer Vision*, 2012. AR*: 26%; h5: 66 (ECCV)
- C62. J. Ryde and **J. J. Corso**. Fast voxel maps with counting bloom filters. In *Proceedings of International Conference on Intelligent Robots and Systems*, 2012. AR*: 43%; h5: 40 (IROS)
- C61. J. A. Delmerico, **J. J. Corso**, D. Baran, P. David, and J. Ryde. Ascending stairway modeling: A first step toward autonomous multi-floor exploration. In *Proceedings of IEEE/RSJ Intelligent Robots and Systems (Video Proceedings)*, 2012. AR*: 43%; h5: 40 (IROS)
- C60. C. Xiong, D. Johnson, R. Xu, and **J. J. Corso**. Random forests for metric learning with implicit pairwise position dependence. In *Proceedings of ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, 2012. AR*: 18%; h5: 67 (KDD)
- C59. S. Sadanand and **J. J. Corso**. Action bank: A high-level representation of activity in video. In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, 2012. AR*: 25%; h5: 106 (CVPR)
- C58. C. Xu and **J. J. Corso**. Evaluation of super-voxel methods for early video processing. In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, 2012. AR*: 25%; h5: 106 (CVPR)
- C57. P. Agarwal, S. Kumar, J. Ryde, **J. J. Corso**, and V. N. Krovi. Estimating human dynamics on-the-fly using monocular video for pose estimation. In *Proceedings of Robotics Science and Systems*, 2012. AR*: 20%; h5: 29 (RSS)
- C56. R. Xu, P. Agarwal, S. Kumar, V. N. Krovi, and **J. J. Corso**. Combining skeletal pose with local motion for human activity recognition. In *Proceedings of VII Conference on Articulated Motion and Deformable Objects*, 2012. h5: 9 (AMDO)
- C55. G. Chen, C. Xiong, and **J. J. Corso**. Dictionary transfer for image denoising via domain adaptation. In *Proceedings of IEEE International Conference on Image Processing*, 2012. AR*: 45%; h5: 34 (ICIP)
- C54. K. R. Keane and **J. J. Corso**. Maintaining prior distributions across evolving eigenspaces: An application to portfolio construction. In *Proceedings of 11th International Conference on Machine Learning and Applications*, 2012. AR*: 40%; h5: 12 (ICMLA)
- C53. C. Xiong and **J. J. Corso**. Coaction discovery: Segmentation of common actions across multiple videos. In *Proceedings of Multimedia Data Mining Workshop in Conjunction with the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (MDMKDD)*, 2012. (MDMKDD)
- C52. C. Xiong, D. Johnson, and **J. J. Corso**. Spectral active clustering via purification of the k -nearest neighbor graph. In *Proceedings of European Conference on Data Mining*, 2012. AR: 14% (ECDM)
- C51. C. Xiong, D. Johnson, and **J. J. Corso**. Efficient max-margin metric learning. In *Proceedings of European Conference on Data Mining*, 2012. **Winner of Best Paper Award at ECDM 2012..** AR: 14% (ECDM)
- C50. K. R. Keane and **J. J. Corso**. Dynamically mixing dynamic linear models with applications in finance. In *Proceedings of International Conference on Pattern Recognition Applications and Methods*, 2012. (ICPRAM)
- C49. M. A. Bustamante and **J. J. Corso**. Using probabilistic ontologies for video exploration. In *Proceedings of the Eighteenth Americas Conference on Information Systems*, 2012. (AMCIS)
- C48. P. Agarwal, S. Kumar, J. Ryde, **J. J. Corso**, and V. N. Krovi. An optimization based framework for human pose estimation in monocular videos. In *Proceedings of International Symposium on Visual Computing*, 2012. (ISVC)

2011

- C47. J. A. Delmerico, P. David, and **J. J. Corso**. Building facade detection, segmentation, and parameter estimation for mobile robot localization and guidance. In *Proceedings of International Conference on Intelligent Robots and Systems*, 2011. AR*: 43%; h5: 40 (IROS)
- C46. P. Agarwal, S. Kumar, **J. J. Corso**, and V. N. Krovi. Estimating dynamics on-the-fly using monocular video. In *Proceedings of 4th Annual Dynamic Systems and Control Conference*, 2011. (DSCC)
- C45. D. Gagneja, C. Xiong, and **J. J. Corso**. Towards a parts-based approach to sub-cortical brain structure parsing. In *Proceedings of SPIE Conference on Medical Imaging*, 2011. h5: 56 (SPIE)
- C44. A. Y. C. Chen and **J. J. Corso**. Temporally consistent multi-class video-object segmentation

- with the video graph-shifts algorithm. In *Proceedings of the 2011 IEEE Workshop on Motion and Video Computing*, 2011. (WMVC)
- 2010 C43. D. R. Schlegel, A. Y. C. Chen, C. Xiong, J. A. Delmerico, and **J. J. Corso**. AirTouch: Interacting with computer systems at a distance. In *Proceedings of IEEE Winter Vision Meetings: Workshop on Applications of Computer Vision (WACV)*, 2011. h5: 16 (WACV)
- C42. W. Ceusters, **J. J. Corso**, Y. Fu, M. Petropoulos, and V. Krovi. Introducing ontological realism for semi-supervised detection and annotation of operationally significant activity in surveillance videos. In *Proceedings of the 5th International Conference on Semantic Technologies for Intelligence, Defense and Security (STIDS)*, 2010. (STIDS)
- C41. R. S. Alomari, **J. J. Corso**, V. Chaudhary, and G. Dhillon. Lumbar disc herniation cad with a GVF-snake model. In *Proceedings of the 24th International Conference on Computer Aided Diagnosis and Surgery (CARS '10)*, 2010. (CARS)
- C40. M. R. Malgireddy, **J. J. Corso**, S. Setlur, V. Govindaraju, and D. Mandalapu. A framework for hand gesture recognition and spotting using sub-gesture modeling. In *Proceedings of the 20th International Conference on Pattern Recognition*, 2010. AR*: 55%; h5: 31 (ICPR)
- C39. Y. Tang, S. Srihari, H. Kasiviswanathan, and **J. J. Corso**. Footwear print retrieval system for real crime scene marks. In *Proceedings of International Workshop on Computational Forensics*, 2010. (IWCF)
- C38. A. Y. C. Chen and **J. J. Corso**. On the effects of normalization in adaptive MRF hierarchies. In *Proceedings of ComplImage '10—Computational Modeling of Objects Presented in Images*, 2010.
- C37. R. S. Alomari, **J. J. Corso**, V. Chaudhary, and G. Dhillon. Automatic diagnosis of lumbar disc herniation using shape and appearance features from mri. In *Proceedings of SPIE Conference on Medical Imaging*, 2010. h5: 56 (SPIE)
- 2009 C36. R. Rodrigues, G. Schroeder, **J. J. Corso**, and V. Govindaraju. Unconstrained face recognition using MRF priors and manifold traversing. In *Proceedings of IEEE International Conference on Biometrics: Theory, Applications, Systems*, 2009. AR*: 43% h5: 25 (BTAS)
- C35. Y. Tao, L. Lu, M. Dewan, A. Y. C. Chen, **J. J. Corso**, J. Xuan, M. Salganicoff, and A. Krishnan. Multi-level ground glass nodule detection and segmentation in ct lung images. In *Proceedings of Medical Image Computing and Computer Aided Intervention (MICCAI)*, volume LNCS 5762, pages 715–723, 2009. AR*: 30%; h5: 30 (MICCAI)
- C34. T. J. Burns and **J. J. Corso**. Robust unsupervised segmentation of degraded document images with topic models. In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, 2009. AR*: 25%; h5: 106 (CVPR)
- C33. R. S. Alomari, **J. J. Corso**, V. Chaudhary, and G. Dhillon. Desiccation diagnosis in lumbar discs from clinical mri with a probabilistic model. In *Proceedings of 2009 IEEE International Symposium on Biomedical Imaging*, 2009. AR*: 60%; h5: 27 (ISBI)
- C32. H. Z. Girgis, **J. J. Corso**, and D. Fischer. On-line hierarchy of general linear models for selecting and ranking the best predicted protein structures. In *Proceedings of IEEE Conference on Engineering in Medicine and Biology*, volume 1, pages 4949–4953, 2009. h5: 28 (EMBS)
- C31. R. S. Alomari, **J. J. Corso**, V. Chaudhary, and G. Dhillon. Abnormality detection in lumbar discs from clinical mr images with a probabilistic model. In *Proceedings of 23rd International Congress and Exhibition on Computer Assisted Radiology and Surgery (CARS 2009)*, 2009. (CARS)
- C30. P. Noël, J. Xu, K. R. Hoffmann, and **J. J. Corso**. Geometric tomography: a limited-view approach for computed tomography. In *Proceedings of the 25th Annual Symposium on Computational Geometry*, 2009. AR*: 28% (ASCG)
- C29. C. S. Hoeflich and **J. J. Corso**. Segmentation of 2D Gel Electrophoresis Spots using a Markov Random Field. In *Proceedings of SPIE Conference on Medical Imaging*, 2009. h5: 56 (SPIE)
- C28. S. Seshamani, M. D. Smith, **J. J. Corso**, M. O. Filipovich, A. Natarajan, and G. D. Hager. Direct Global Adjustment Methods for Endoscopic Mosaicking. In *Proceedings of SPIE Conference on Medical Imaging*, 2009. h5: 56 (SPIE)
- C27. P. B. Noël, **J. J. Corso**, J. Xu, K. R. Hoffmann, S. Schafer, and A. Walczak. Reconstruction from a Flexible Number of Projections in Cone-Beam Computed Tomography via Active Shape Models. In *Proceedings of SPIE Conference on Medical Imaging*, 2009. h5: 56 (SPIE)
- C26. P. B. Noël, J. Xu, K. R. Hoffmann, **J. J. Corso**, S. Schafer, and A. Walczak. High Contrast Artifact Reduction in Cone Beam Computed Tomography by Using Geometric Techniques. In *Proceedings of SPIE Conference on Medical Imaging*, 2009. h5: 56 (SPIE)

- 2008
- C25. A. Y. C. Chen, **J. J. Corso**, and L. Wang. HOPS: Efficient region labeling using higher order proxy neighborhoods. In *Proceedings of International Conference on Pattern Recognition*, 2008. AR*: 55%; h5: 31 (ICPR)
- C24. J. Li, S. Tulyakov, F. Farooq, **J. J. Corso**, and V. Govindaraju. Integrating minutiae based fingerprint matching with local mutual information. In *Proceedings of International Conference on Pattern Recognition*, 2008. AR*: 55%; h5: 31 (ICPR)
- C23. **J. J. Corso**, R. S. Alomari, and V. Chaudhary. Lumbar disc localization and labeling with a probabilistic model on both pixel and object features. In *Proceedings of Medical Image Computing and Computer Aided Intervention (MICCAI)*, volume LNCS 5241 Part 1, pages 202–210, 2008. AR*: 30%; h5: 30 (MICCAI)
- C22. I. Nwogu and **J. J. Corso**. Exploratory identification of image-based bio-markers for solid mass pulmonary tumors. In *Proceedings of Medical Image Computing and Computer Aided Intervention (MICCAI)*, volume LNCS 5241, Part 1, pages 612–619, 2008. AR*: 30%; h5: 30 (MICCAI)
- C21. **J. J. Corso**. Discriminative Modeling by Boosting on Multilevel Aggregates. In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, 2008. AR*: 25%; h5: 106 (CVPR)
- C20. **J. J. Corso**, A. Yuille, and Z. Tu. Graph-Shifts: Natural Image Labeling by Dynamic Hierarchical Computing. In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, 2008. AR*: 25%; h5: 106 (CVPR)
- C19. I. Nwogu and **J. J. Corso**. (BP)²: Beyond Pairwise Belief Propagation, Labeling by Approximating Kikuchi Free Energies. In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, 2008. AR*: 25%; h5: 106 (CVPR)
- C18. **J. J. Corso**, Z. Tu, and A. Yuille. MRF Labeling with a Graph-Shifts Algorithm. In *Proceedings of International Workshop on Combinatorial Image Analysis*, volume LNCS 4958, pages 172–184, 2008. (IWCIA)
- C17. I. Nwogu and **J. J. Corso**. Labeling irregular graphs with belief propagation. In *Proceedings of International Workshop on Combinatorial Image Analysis*, volume LNCS 4958, pages 295–305, 2008. (IWCIA)
- C16. P. B. Noël, A. Walczak, K. R. Hoffmann, J. Xu, **J. J. Corso**, and S. Schafer. Clinical Evaluation of GPU-Based Cone Beam Computed Tomography. In *Proceedings of High-Performance Medical Image Computing and Computer-Aided Intervention (HP-MICCAI)*, 2008.
- C15. S. Dube, **J. J. Corso**, A. Yuille, T. F. Cloughesy, S. El-Saden, and U. Sinha. Hierarchical Segmentation of Malignant Gliomas Via Integrated Contextual Filter Response. In *Proceedings of SPIE Conference on Medical Imaging*, 2008. h5: 56 (SPIE)
- 2007
- C14. **J. J. Corso**, A. L. Yuille, N. L. Sicotte, and A. Toga. Detection and Segmentation of Pathological Structures by the Extended Graph-Shifts Algorithm. In *Proceedings of Medical Image Computing and Computer Aided Intervention (MICCAI)*, 2007. AR*: 30%; h5: 30 (MICCAI)
- C13. **J. J. Corso**, Z. Tu, A. Yuille, and A. W. Toga. Segmentation of Sub-Cortical Structures by the Graph-Shifts Algorithm. In *Proceedings of Information Processing in Medical Imaging (IPMI)*, volume LNCS 4584, pages 183–197, 2007. AR: 28%; h5: 16 (IPMI)
- 2006
- C12. **J. J. Corso**, E. Sharon, and A. L. Yuille. Multilevel Segmentation and Integrated Bayesian Model Classification with an Application to Brain Tumor Segmentation. In *Proceedings of Medical Image Computing and Computer Aided Intervention (MICCAI)*, volume 2, pages 790–798, 2006. AR*: 30%; h5: 30 (MICCAI)
- 2005
- C11. **J. J. Corso** and G. D. Hager. Coherent Regions for Concise and Stable Image Description . In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, volume 2, pages 184–190, 2005. AR*: 25%; h5: 106 (CVPR)
- 2004
- C10. **J. J. Corso**, M. Dewan, and G. D. Hager. Image Segmentation Through Energy Minimization Based Subspace Fusion. In *Proceedings of 17th International Conference on Pattern Recognition (ICPR 2004)*, 2004. AR*: 55%; h5: 31 (ICPR)
- C9. W. W. Lau, N. A. Ramey, **J. J. Corso**, N. Thakor, and G. D. Hager. Stereo-Based Endoscopic Tracking of Cardiac Surface Deformation. In *Proceedings of Seventh International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, 2004. AR*: 30%; h5: 30 (MICCAI)
- C8. N. Ramey, **J. J. Corso**, W. W. Lau, D. Burschka, and G. D. Hager. Real Time 3D Surface

- Tracking and Its Applications. In *Proceedings of Workshop on Real-time 3D Sensors and Their Use (at CVPR 2004)*, 2004. (CVPRW)
- 2003 C7. G. Ye, **J. J. Corso**, and G. D. Hager. Gesture Recognition Using 3D Appearance and Motion Features. In *Proceedings of Workshop on Real-time Vision for Human-Computer Interaction (at CVPR 2004)*, 2004. (CVPRW)
- C6. G. Ye, **J. J. Corso**, G. D. Hager, and A. M. Okamura. VisHap: Augmented Reality Combining Haptics and Vision. In *Proceedings of IEEE International Conference on Systems, Man and Cybernetics*, 2003. h5: 20 (SMC)
- C5. **J. J. Corso**, D. Burschka, and G. D. Hager. Direct Plane Tracking in Stereo Image for Mobile Navigation. In *Proceedings of International Conference on Robotics and Automation*, 2003. AR*: 45%; h5: 55 (ICRA)
- C4. G. Ye, **J. J. Corso**, D. Burschka, and G. D. Hager. VICs: A Modular Vision-Based HCI Framework. In *Proceedings of 3rd International Conference on Computer Vision Systems*, pages 257–267, 2003. AR: 40%; h5: 15 (ICVS)
- C3. **J. J. Corso**, D. Burschka, and G. D. Hager. The 4DT: Unencumbered HCI With VICs. In *Proceedings of CVPRHCI*, 2003. (CVPRW)
- 2002 C2. J. Leven, **J. J. Corso**, J. D. Cohen, and S. Kumar. Interactive Visualization of Unstructured Grids Using Hierarchical 3D Textures. In *Proceedings of IEEE/SIGGRAPH Symposium on Volume Visualization and Graphics 2002*, pages 37–44, 2002. (VOLVIS)
- C1. **J. J. Corso**, J. Chhugani, and A. Okamura. Interactive Haptic Rendering of Deformable Surfaces Based on the Medial Axis Transform. In *Eurohaptics*, pages 92–98, 2002.

BOOK CHAPTERS AND THESES

- B4. S. Dube, **J. J. Corso**, T. F. Cloughesy, S. El-Saden, A. Yuille, and U. Sinha. *Data Mining Systems Analysis and Optimization in Biomedicine*, chapter Automated MR Image Processing and Analysis of Malignant Brain Tumors: Enabling Technology for Data Mining. American Institute of Physics, 2007.
- B3. **J. J. Corso**. *Techniques for Vision-Based Human-Computer Interaction*. PhD thesis, The Johns Hopkins University, 2005.
- B2. G. Ye, **J. J. Corso**, and G. D. Hager. *Real-Time Vision for Human-Computer Interaction*, chapter 7: Visual Modeling of Dynamic Gestures Using 3D Appearance and Motion Features, pages 103–120. Springer-Verlag, 2005.
- B1. **J. J. Corso**. Vision-Based Techniques for Dynamic, Collaborative Mixed-Realities. In B. J. Thompson, editor, *Research Papers of the Link Foundation Fellows*, volume 4. University of Rochester Press, 2004. Invited Report for Link Foundation Fellowship.

REPORTS (NOT PEER-REVIEWED) AND PAPERS IN REVIEW

- R14. A. Barbu, N. Siddharth, C. Xiong, **J. J. Corso**, C. D. Fellbaum, C. Hanson, S. J. Hanson, S. Hélie, E. Malaia, B. A. Pearlmutter, J. M. Siskind, T. M. Talavage, and R. B. Wilbur. The compositional natural of verb and argument representations in the human brain. Technical Report 1306.2293, arXiv, 2013.
- R13. C. S. Lea and **J. J. Corso**. Efficient hierarchical markov random fields for object detection on a mobile robot. Technical Report 1111.1599v1, arXiv, November 2011.
- R12. A. Perera, S. Oh, M. Leotta, I. Kim, B. Byun, C.-H. Lee, S. McCloskey, J. Liu, B. Miller, Z. F. Huang, A. Vahdat, W. Yang, G. Mori, K. Tang, D. Koller, L. Fei-Fei, K. Li, G. Chen, **J. J. Corso**, Y. Fu, and R. K. Srihari. GENIE TRECVID2011 multimedia event detection: Late-fusion approaches to combine multiple audio-visual features. In *NIST TRECVID Workshop*, 2011.
- R11. A. Y. C. Chen and **J. J. Corso**. Propagating multi-class pixel labels throughout video frames. In *Proceedings of Western New York Image Processing Workshop*, 2010.
- R10. J. A. Delmerico, **J. J. Corso**, and P. David. Boosting with stereo features for building facade detection on mobile platforms. In *Proceedings of Western New York Image Processing Workshop*, 2010.
- R9. H. Girgis and **J. J. Corso**. STP: The Sample-Train-Predict Algorithm and Its Application to Protein Structure Meta-Selection. Technical Report 2008-16, University at Buffalo SUNY, 2008.

- R8. I. Nwogu, **J. J. Corso**, and T. Bittner. The design of an ontology-enhanced anatomy labeler. Technical Report 2008-09, University at Buffalo SUNY, 2008.
- R7. C. Arnold, **J. J. Corso**, and A. Bui. An Unsupervised Approach to Automatic Image Annotation. In *NSF Biomedical Informatics Workshop: Expanding Secondary Use of Health Data*, 2007.
- R6. D. Burschka, G. Ye, **J. J. Corso**, and G. D. Hager. A Practical Approach for Integrating Vision-Based Methods into Interactive 2D/3D Applications. Technical report, The Johns Hopkins University, 2005. CIRL Lab Technical Report CIRL-TR-05-01.
- R5. **J. J. Corso**, M. Dewan, and G. D. Hager. Image Segmentation Through Energy Minimization Based Subspace Fusion. Technical Report CIRL-TR-04-01, The Johns Hopkins University, 2004.
- R4. **J. J. Corso**, N. Ramey, and G. D. Hager. Stereo-Based Direct Surface Tracking with Deformable Parametric Models. Technical report, The Johns Hopkins University, 2003. CIRL Lab Technical Report 2003-02.
- R3. **J. J. Corso**, G. Ye, D. Burschka, and G. D. Hager. Software Systems for Vision-Based Spatial Interaction. In *Proceedings of 2002 Workshop on Intelligent Human Augmentation and Virtual Environments*, pages D-26 and D-56, 2002.
- R2. **J. J. Corso** and G. D. Hager. Planar Surface Tracking Using Direct Stereo. Technical report, The Johns Hopkins University, 2002. CIRL Lab Technical Report.
- R1. **J. J. Corso** and J. D. Cohen. Out-Of-Core Voxelization of Large Scalar Fields for Interactive Multiresolution Volume Rendering. Technical report, The Johns Hopkins University, 2002. Graphics Lab Technical Report.

PATENTS

- P3. **J. J. Corso** and S. Sadanand. Method of Recognizing Activity in Video. Patent Pending (WO/2013/122675).
- P2. D. Das, M. Filipovich, **J. J. Corso**, G. D. Hager. Systems and Methods for Motion and Distance Measurement in Gastrointestinal Endoscopy. Patent Pending (13/457,305).
- P1. **J. J. Corso**, M. Smith, and M. Filipovich. System and Method for Mosaicing Endoscope Images Captured From Within A Cavity. Patent Pending (12/347,855).

FUNDING

- TOTAL FUNDING: \$6,754,071 (\$5,733,564 as PI)
 SHARE CREDIT: \$4,644,830
Funding is sorted by start date (recent first).
Active funding (4,9,10,12,14,15 and 16) is prefixed with an asterisk.
Dollar amounts listed as \$Total (\$Share; Percent Credit)
- F16. ***PI: Transferring ACE to the Analyst** \$250,000 (\$250,000; 100%)
 SOURCE: DARPA CSSG Phase III 7/2012-7/2014
 OBJECTIVE: The main objective is to investigate how our developments in the Phase II active clustering into real application use with our defense partner.
- F15. ***PI: Computer Vision and Mobile Robot Technologies for Advanced Emergency Response** \$261,178 (\$261,178; 100%)
 SOURCE: CUBRC (Federal Highway Administration) 10/2011-3/2014
 OBJECTIVE: This project seeks to develop and deploy single and multiple robotic platforms capable of concurrently mapping emergency sites in normal and adverse conditions.
- F14. ***Co-PI: Objective Imaging-Based Assessment of Smoking Behavior from Used Filters** \$275,000 (\$164,313; 60%)
 SOURCE: National Institutes of Health NCI 1 R21 CA160825-01 9/2011-9/2014
 COLLABORATORS: O'Connor (PI, Roswell Park)
 OBJECTIVE: The proposal seeks to refine our ability to quantify the smoking behavior through digital image analysis of cigarette filters.
- F13. **PI: Two-Rank Mobile Robot Fleet for Swarm Surveillance, Warfighter Assistance, and other Army-related Research and Research-Related Education** \$250,000 (\$200,000; 80%)
 SOURCE: Army Research Office DURIP 9/2011-6/2013
 COLLABORATORS: Demirbas (CSE), Fu (CSE), Krovi (MAE), Nagi (MAE)
 OBJECTIVE: The basic goal is to enhance the DoD's capabilities for using fleets and swarms of ground-based sensor-rich unmanned and autonomous mobile robots (UGVs).

- F12. ***PI:** *GBS: Guidance By Semantics—Using High-Level Visual Inference to Improve Vision-based Mobile Robot Localization* \$150,000 (\$150,000; 100%)
 SOURCE: Army Research Office Young Investigator Program 6/2011-6/2014
 OBJECTIVE: The goal is to investigate how semantic perception can be used to improve the accuracy, speed, and robustness of vision-based localization of mobile robot platforms.
- F11. **PI:** *Comprehensive Object Detection Library for Large-Scale Image Analytics* \$190,975 (\$190,975; 100%)
 SOURCE: Naval Postgraduate School 5/2011-10/2012
 OBJECTIVE: The goal of the proposed work is to build a comprehensive object detection library and evaluate the methods for large-scale image sets.
- F10. ***PI:** *Ontology, Event Agents and Event Recounting for ALADDIN* \$999,469 (\$799,575; 80%)
 SOURCE: IARPA (sub from Kitware, Inc.) 3/2011-3/2016
 COLLABORATORS: Fu (CSE) and R. Srihari (CSE)
 OBJECTIVE: The goal of this project is to improve the representation and indexing of objects and events in large-scale video analysis by efficiently encoding the low-level perceptual entities in the video and grounding them with rich high-level semantics.
- F9. ***PI:** *ISTARE: Intelligent Spatio-Temporal Activity Reasoning Engine* \$2,208,368 (\$1,104,184; 50%)
 SOURCE: DARPA Mind's Eye Program 9/2010-12/2013
 COLLABORATORS: Fu (CSE), Ceusters (Psychiatry), Krovi (MAE), Petropoulos (CSE)
 OBJECTIVE: The goal of this proposal is a development of a methodology for representation, learning, recognition of and reasoning over activities in persistent surveillance videos.
- F8. **Co-PI:** *II-NEW: Acquisition of a Biomedical Computing Infrastructure* \$588,554 (\$58,855; 10%)
 SOURCE: National Science Foundation CRI 9/2010-9/2011
 COLLABORATORS: Chaudhary (PI, CSE), Hoffmann (NS), Krovi (MAE), Furlani (CCR)
 OBJECTIVE: The major goal of this project is to establish a state-of-the-art computing infrastructure for memory- and compute-bound problems in biomedicine.
- F7. **PI:** *Semantic Video Summarization With Ontology-Driven Probabilistic Inference on Massive Multimedia Collections* \$357,080 (\$357,080; 100%)
 SOURCE: CIA/IC Postdoc Fellowship Program 7/2010-7/2013
 OBJECTIVE: The main goal of the proposal is to advance the understanding of how probabilistic ontologies of semantic entities and entity-entity relationships can drive inference for semantic summarization of content in massive video collections.
- F6. **PI:** *ACE – Active Clustering for Exploitation and Defense Forensics* \$399,780 (\$399,780; 100%)
 SOURCE: DARPA CSSG Phase II 6/2010-6/2012
 OBJECTIVE: The main objective is to investigate how active clustering can be used to induce high-level models of phenomena in video with the help of a user.
- F5. **PI:** *Digital Imaging of Cigarette Filters* \$27,958 (\$27,958; 100%)
 SOURCE: Health Research, Inc. 9/2009-12/2009
 OBJECTIVE: The major goal of this project is to develop improved image analysis techniques for quantifying the properties of cigarette filters in digital images.
- F4. ***PI:** *CAREER: Generalized Image Understanding with Probabilistic Ontologies and Dynamic Adaptive Graph Hierarchies* \$539,086 (\$539,086; 100%)
 SOURCE: National Science Foundation CAREER Program 7/2009-7/2014
 OBJECTIVE: The major research goal is to investigate a unified model of image representation integrating probabilistic methods, machine learning, probabilistic ontologies, and dynamic adaptive graphs to advance our ability to solve the image understanding problem.
- F3. **PI:** *Probabilistic Ontology Induction for Generalized Video Understanding* \$99,670 (\$99,670; 100%)
 SOURCE: DARPA CSSG Phase I 4/2009-7/2010
 OBJECTIVE: The major goal is to develop the foundational models for learning high-level semantic representations of objects from video data, automatically and unsupervisedly.
- F2. **Co-PI:** *Multimodal Command-and-Control By Integrating Two-Handed Gestures and Speech* \$129,953 (\$32,488; 25%)
 SOURCE: Hewlett Packard Labs Innovation Research Program 8/2008-8/2010
 COLLABORATORS: Govindaraju (PI)
 OBJECTIVE: The major goal of this project is to integrate multimodal processing into robust gesture recognition.

- F1. **Co-PI: Reconstructing CT Images from a Limited Number of Projections** \$27,000 (\$9,000; 33%)
 SOURCE: UB Interdisciplinary Research Development Fund
 COLLABORATORS: Xu (PI, CSE) and Hoffman (NS)
 OBJECTIVE: This project explores how redundant information in different projections can be combined with a priori knowledge of the anatomy to reduce dosage while maintaining high quality reconstructions.

AFFILIATIONS	Member , Association for the Advancement of Artificial Intelligence (AAAI)	2011-PRESENT
	Member , Mathematical Association of America (MAA)	2005-PRESENT
	Member , IEEE Robotics and Automation Society	2003-2005
	Member , Upsilon Pi Epsilon, Computer Science Honor Society	1999-PRESENT
	Member , Alpha Sigma Nu, National Jesuit Honor Society	1999-PRESENT
	Member , Association of Computing Machinery (ACM)	1998-PRESENT
	Member , IEEE Computer Society (IEEE)	1998-PRESENT

SERVICE	EDITORSHIP	
	* Associate Editor , Computer Methods and Programs in Biomedicine <i>Published by Elsevier</i>	9/2009-PRESENT

SENIOR PROGRAM COMMITTEE

- * **Area Chair**, European Conference on Computer Vision (ECCV) 2014
- * **Area Chair**, IEEE Winter Conf. on Applications of Computer Vision (WACV) 2014
- * **Area Chair**, IEEE Conf. on Computer Vision and Pattern Recognition (CVPR) 2013
- * **Area Chair**, IEEE Conf. on Computer Vision and Pattern Recognition (CVPR) 2012

CONFERENCE AND WORKSHOP ORGANIZATION

- * **Student Activities Chair**, IEEE Conf. on Computer Vision and Pattern Recognition 2014
- * **Organizing Committee**, ACCV Workshop on Detection and Tracking in Challenging Environments (DTCE 2012) 2012
Jointly with J. Lim (Hanyang Univ.), B. Han (POSTECH), B. Triggs (CNRS) and A. Elgammal (Rutgers).
- * **Student Activities Chair**, IEEE Conf. on Computer Vision and Pattern Recognition 2012
- * **Organizing Committee**, Joint Workshop on High-Performance and Distributed Computing for Medical Imaging (HP-MICCAI/MICCAI-DCI) 2011
- * **Organizing Committee**, High-Performance MICCAI 2010
Jointly with Chaudhary (UB), Gong (IBM), Blezek (Mayo), and Kulikowski (Rutgers)
- * **Organizing Committee**, High-Performance MICCAI 2008
Jointly with Chaudhary (UB) and Gong (IBM)

PROGRAM COMMITTEE AND CONFERENCE REVIEWER

- * European Conference on Computer Vision
- * IEEE Conference on Computer Vision and Pattern Recognition
- * IEEE Conference on Robotics and Automation
- * IEEE/RSJ International Conference on Intelligent Robots and Systems
- * IEEE International Conference on Computer Vision
- * International Conference on Multimedia and Expo
- * Medical Image Computing and Computer Aided Intervention.
Above, years are not given for readability; service has been steady for most of these since 2006.
- * IEEE International Workshop on Web-scale Vision and Social Media (VSM at CVPR 2014) 2014
- * IEEE International Conference on Semantic Computing (ICSC) 2014
- * International Workshop on Large Scale Visual Commerce (LSVisCom at ICCV) 2013
- * Workshop on Large-Scale Video Search and Mining (LSVSM'13 at ICCV) 2013
- * International Workshop on Action Recognition with a Large Number of Classes (at ICCV) 2013
- * ISPRS Workshop on Image Sequence Analysis (ISA) 2013
- * IEEE International Conference on Semantic Computing (ICSC) 2013
- * IEEE Workshop on Mobile Vision (at ICCV) 2013
- * IEEE Face and Gesture (FG) 2013
- * Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR) 2013
- * Fully 3D Image Reconstruction in Radiology and Nuclear Medicine Meeting 2013
- * Asian Conference on Computer Vision 2012

* IEEE International Conference on Semantic Computing (ICSC)	2012
* International Symposium on Visual Computing (ISVC)	2012
* International Conference on Image Processing (ICIP)	2012
* IEEE International Conference on Semantic Computing (ICSC)	2011
* Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR)	2011
* Int'l Workshop on Stochastic Image Grammars (SIG-11, at ICCV)	2011
* IEEE International Conference on Semantic Computing (ICSC)	2010
* IEEE Workshop on Mobile Vision (at ICCV)	2011
* IEEE Workshop on Mobile Vision (at CVPR)	2010
* Workshop on Probabilistic, Models for Medical Image Analysis (at MICCAI)	2009
* Int'l Workshop on Stochastic Image Grammars (SIG-09, at CVPR 2009)	2009
* Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR)	2009
* IEEE 8th Intl Symposium on Signal Processing and Information Technology (ISSPIT)	2008
* Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR)	2007
* IEEE 7th Int'l Symposium on BioInformatics and BioEngineering (BIBE)	2007

JOURNAL REVIEWER

* ACM Computing Reviews
* Computer Methods and Programs in Biomedicine
* Computer Vision and Image Understanding
* IEEE Multimedia
* IEEE Signal Processing Letters
* IEEE Transactions on Biomedical Engineering
* IEEE Transactions on Image Processing
* IEEE Transactions on Information Technology in Biomedicine
* IEEE Transactions on Knowledge and Data Engineering
* IEEE Transactions on Medical Imaging
* IEEE Transactions on Multimedia
* IEEE Transactions on Pattern Analysis and Machine Intelligence
* IEEE Transactions on Systems, Man, and Cybernetics
* Image and Vision Computing
* International Journal of Computer Assisted Radiology and Surgery
* International Journal of Computer Vision
* Machine Vision and Applications
* Medical Physics
* Neuro Image
* Pattern Recognition
* Pattern Recognition Letters

PANELIST

* National Science Foundation Panel/Reviewer (CISE/IIS)	2009,2011-13
* Technology Foundation STW	2009
<i>A Dutch funding agency for academic research in the field of applied sciences</i>	

SUNY AT BUFFALO COMMITTEES

* Rising Scholar Committee (advisor to VPR)	2013-PRESENT
* Faculty Search Committe	2010-PRESENT
* Graduate Studies Committee	2008-PRESENT
* Artificial Intelligence Area Coordinator	2011-2013
* Distinguished Speaker Series Committee	2010
* Brochure and Website Committee	2010
* Colloquium Committee	2009
* Graduate Admissions Committee	2008-2009

INVITED TALKS

Why Label When You Can Compare? Active Constraint Pursuit in Metric Learning and Clustering	
- Virginia Tech (CS)	3/2014
Perceiving Action in Space-Time: Computational and Human Perspectives	
- Northeastern University (ECE)	2/2014
- University of Minnesota (CSE)	3/2014
- University of Michigan (EECS)	3/2014
Semantic Scale Selection from Video Segmentation Hierarchies	
- Ohio State University (ECE)	1/2014

What Representation is Right for Recognizing Activities in the Large Scale?	
- Keynote Address at ICCV 2013 Workshop on Action Recognition with a Large Number of Classes	12/2013
Can Language and Segmentation Play a Role in Large Scale Video Search?	
- ICCV 2013 Workshop on Large Scale Video Search and Mining	12/2013
Advances in Segmentation for Video Understanding	
- Rutgers University (Perceptual Science Forum Keynote Address)	5/2013
- University of Central Florida	4/2013
- University of Massachusetts Amherst	2/2013
- Stevens Institute of Technology	12/2012
- University of Pennsylvania	11/2012
- Microsoft Research Asia	8/2012
Joint Segmentation and Recognition of Medical Images with Layered Models	
- Second Vision and Multimedia Meeting in the Greater NY Area	6/2012
Graph-Shifts: Dynamic Hierarchical Energy Minimization for Segmentation and Classification.	
- GE Research	10/2010
- University of California, San Diego, Computer Science and Engineering	9/2010
- Army Research Labs CISD	10/2010
- Johns Hopkins University, Computer Science	5/2009
- Siemens Medical Solutions	12/2008
- Massachusetts Institute of Technology, CSAIL	11/2008
- SUNY at Buffalo, Computer Science and Engineering	3/2007
Bayesian Machine Intelligence Research at Buffalo	
- ITT Space Systems Division	2/2009
- MTM Interactive	6/2008
Multilevel Image Segmentation and Integrated Bayesian Model Classification.	
- Stony Brook University, Computer Science	10/2006
- IBM TJ Watson Research Center	10/2006
- Rutgers University, Center for BioImaging and Modeling	10/2006
- Siemens Corporate Research	10/2006
- Vanderbilt Institute for Imaging Science	7/2006
- UCLA Laboratory of Neuroimaging SIG-STAT Meeting	3/2006
- UCLA Statistics Seminar Series	4/2006
- Johns Hopkins University, ERC CISST	5/2006
Coherent Image Regions	
- UCLA Medical Imaging Informatics	5/2005

TEACHING

TUTORIALS AND SUMMER SCHOOLS	
Video Segmentation Tutorial at CVPR 2014 with Irfan Essa and Matthias Grundmann	6/2014
IPAM Graduate Summer School on Computer Vision University of California, Los Angeles, Institute for Pure and Applied Mathematics	7/2013
International Summer School on Vision, Learning and Cognition Beijing University of Posts and Telecommunications	8/2012
SUNY AT BUFFALO, COMPUTER SCIENCE AND ENGINEERING	
CSE 455/555 Introduction to Pattern Recognition	
<i>Cross-listed undergraduate graduate course.</i>	
- Spring 2013: Enrollment 70	
- Spring 2012: Enrollment 73	
- Spring 2011: Enrollment 60	
- Spring 2010: Enrollment 35	
- Spring 2009: Enrollment 29	
CSE 672 Bayesian Vision	
<i>New upper-level graduate course.</i>	
- Fall 2012: Enrollment 22	
- Fall 2010: Enrollment 12	
- Spring 2009: Enrollment 8	
CSE 642 Techniques in AI: Vision for HCI	

- Fall 2009: Enrollment 8

CSE Seminars

- Spring 2014: Readings in Joint Visual, Lingual and Physical Models and Inference
- Fall 2011: Readings in Computer Vision and Machine Learning
- Fall 2010: Readings in Video Analysis
- Fall 2009: Readings in Image Semantics
- Fall 2008: Readings in Pattern Theory
- Fall 2007: Readings in Medical Image Segmentation

PRIOR EXPERIENCE AS A POSTDOC AND GRADUATE STUDENT

Object-Oriented Methods in Software Engineering - UCLA BIOMED 223C, Spring 2006.

Research Experience for Undergraduates Mentorship - Luz Molinelli, Summer 2005.
Project: Retinal disease diagnosis through multidimensional histogram analysis.

Research Experience for Undergraduates Mentorship - Ravi Mody, Summer 2004.
Project: Machine learning to track hand postures.

Guest Lecturer - Computer Vision, Cameras and Calibration, Dr. Gregory Hager, Fall 2002.

Teaching Assistant - Computer Vision, Dr. Gregory Hager, Fall 2001. Duties included holding weekly office hours, grading homeworks and projects, and preparing review notes.

Teaching Assistant - Data Structures, Dr. Subodh Kumar in Fall 2000 and Dr. Jonathan Cohen in Spring 2001. Duties included managing a team of 5 course assistants, holding weekly office hours, grading projects and exams, and holding review sessions.

STUDENT ADVISING

PH.D. STUDENTS

D13. Richard F. Doell	EXPECTED SPRING 2018
D12. Vikas Dhiman	EXPECTED SPRING 2017
D11. Liang Zhao	EXPECTED SPRING 2016
D10. Wei Chen	EXPECTED SPRING 2016
D9. Duygu Sarikaya	EXPECTED SPRING 2015
D8. Ran Xu	EXPECTED SPRING 2015
D7. David Johnson	EXPECTED SPRING 2015
D6. Chenliang Xu	EXPECTED SPRING 2015
D5. Caiming Xiong	EXPECTED SPRING 2014
D4. Kevin R. Keane	EXPECTED FALL 2013
D3. Jeffrey A. Delmerico	8/2013
THESIS: <i>Attributed Object Maps: Descriptive Object Models as High-level Semantic Features for Mobile Robotics</i>	
PLACEMENT: Postdoc at the University of Hawaii.	
D2. Albert Y. C. Chen	5/2013
THESIS: <i>Modeling and Optimizing Spatiotemporal Priors for Video Analysis Problems</i>	
PLACEMENT: Computer Scientist at Tandent Vision Science (Pittsburgh, PA).	
D1. Ifeoma Nwogu, Ph.D.	8/2009
Jointly advised with Prof. Venu Govindaraju	
THESIS: <i>An Ontology Driven Probabilistic Methodology for Image Understanding</i>	
PLACEMENT: Dr. Nwogu received the NSF Computing Innovation Fellowship upon graduation. She is now a research faculty at SUNY at Buffalo.	

M.S.E. STUDENTS

M8. Duygu Sarikaya	6/2012
THESIS: <i>Detection and Segmentation of Free Blood in FAST Exam Ultrasound Images</i>	
PLACEMENT: Ms. Sarikaya is a Ph.D. student at SUNY at Buffalo	
M7. Ananth Sadanand	2/2012
THESIS: <i>Action Bank: A High-Level Representation of Activity in Video</i>	
PLACEMENT: Mr. Sadanand is a Computer Vision Engineer at Liveclips.com in New York, NY.	

- M6. Sagar Waghmare 2/2012
 THESIS: *Comparative Study of Feature-Selective Sliding Window Object Detectors in Images*
 PLACEMENT: Mr. Waghmare is a Computer Vision Programming Specialist at a startup in New York City.
- M5. Xin Li, M.S.E. 8/2011
 THESIS: *Key-Part Detection Using Boundary-Regional Codebook*
 PLACEMENT: Mr. Li is a Ph.D. student at Temple University.
- M4. Yingjie Miao, M.S.E. 6/2011
 PROJECT: *Hamiltonian Streamline Guided Feature Extraction with Application to Face Detection*
 PLACEMENT: Dr. Miao is a Machine Learning Engineer at SAP.
- M3. Timothy J. Burns, M.S.E. 6/2010
 PROJECT: *Document Image Segmentation and Labeling with Topic Models*
 PLACEMENT: Mr. Burns is a Software Engineer in Buffalo, NY.
- M2. Dipankar Das, M.S.E. 12/2009
 THESIS: *Hierarchical Multiple Instance Learning for Object Detection*
 PLACEMENT: Mr. Das is a Research Engineer at Ikona Medical in Santa Monica, CA.
- M1. Chris Hoeflich, M.S.E. 12/2008
 PROJECT: *Segmentation of 2D Gel Electrophoresis Spots Using a Markov Random Field.*
 PLACEMENT: Mr. Hoeflich is a Software Engineer in Buffalo, NY.

CURRENT B.S. STUDENTS

In the capacity that I mentor them in research.

- U6. Spencer Whitt EXPECTED SPRING 2014
- U5. Philip Rosebrough, B.S. 6/2012
- U4. Steven Hsieh, B.S. 6/2012
- U3. Colin Lea, B.S. 6/2011
- U2. Alexander Haynie, B.S. 6/2011
- U1. Andrew Schlackman, B.S. 6/2009

PH.D. AND M.S.E. COMMITTEE MEMBERSHIP

Students for whom I am not the primary advisor.

- Z12. Jingteng Xue, Ph.D. Candidate, Advisor: Prof. Chang Wen Chen
- Z11. Shujie Liu, Ph.D. Candidate, Advisor: Prof. Chang Wen Chen
- Z10. Wenyuan Yin, Ph.D. Candidate, Advisor: Prof. Chang Wen Chen
- Z9. Yi Tang, Ph.D. GRANTED SUMMER 2012
 ADVISOR: Prof. Sargur Srihari
Evaluating the Probability of Identification in Forensic Science
- Z8. Chang Su, Ph.D. GRANTED SUMMER 2011
 ADVISOR: Prof. Sargur Srihari
Machine Learning in Fingerprint Probability Evaluation
- Z7. Ricardo Rodrigues, Ph.D. GRANTED SUMMER 2011
 ADVISOR: Prof. Venu Govindaraju
Face Modeling and Biometric Anti-Spoofing using Probability Distribution Transfer Learning
- Z6. Anh Ngoc Le, Ph.D. GRANTED SPRING 2011
 ADVISOR: Prof. Hung Ngo.
On the Data Flow Masquerading Problem
- Z5. Xujun Peng, Ph.D. GRANTED FALL 2010
 ADVISOR: Prof. Venu Govindaraju.
Probabilistic Random Field Based Text Identification From Annotated Machine Printed Documents
- Z4. Gabriel Terajanu, Ph.D. GRANTED SPRING 2010
 ADVISOR: Prof. Peter Scott
Towards a Decision-Centric Framework for Uncertainty Propagation and Data Assimilation
- Z3. Bhaskar Purkayastha, M.S.E. GRANTED FALL 2009
 ADVISOR: Prof. Venu Govindaraju
Integrating Gesture Recognition and Speech Recognition in a Touch-Less Human Computer Interaction System.

- Z2. Peter Noël, Ph.D. GRANTED SUMMER 2009
 ADVISOR: Prof. Jinhui Xu
Geometric Algorithms for Three Dimensional Reconstruction in Medical Imaging
- Z1. Hani Z. Girgis, Ph.D. GRANTED SUMMER 2008
 ADVISOR: Prof. Daniel Fischer
Machine Learning Based Meta Approaches to Protein Structure Prediction

VISITING SCHOLARS

- V4. David Molik (Rensselaer Polytechnic Institute, Undergrad) SUMMER 2012
- V3. Wei Wu (Assoc. Professor, School of Information Engineering, Wuhan University of Technology) 2/2011-2/2012
- V2. Srijan Kumar (IIT Kharagpur, Undergrad) SUMMER 2011
- V1. Digvijay Gagneja (IIT Kharagpur, Undergrad) SUMMER 2010

SOFTWARE &
 DATA SETS

- Video2Text.net** 2013
 A website and web-service for automatic conversion of videos to natural language sentences based on the video content. This website showcases our work in the vision+language domain.
<http://www.video2text.net>
- YouCook** 2013
 Data set of third-person cooking videos categorized into six styles of cooking and selected from open-source web videos of different kitchens and complexity levels. It contains object and action bounding boxes as well as multiple natural language descriptions of each video.
<http://www.cse.buffalo.edu/~jcorso/r/youcook>
- Random Forest Distance** 2012
 Software implementation of our KDD 2012 tree-structured metric learning paper.
http://www.cse.buffalo.edu/~jcorso/pubs/RFD_Package.zip
- LIBSVX** 2012
 Supervoxel library: a set of methods for early video processing by computing supervoxel segmentations as well as a quantitative benchmark for fair comparisons of those segmentations.
<http://www.cse.buffalo.edu/~jcorso/r/supervoxels>
Winner Best Demo Prize at 2nd Greater New York Multimedia and Vision Meeting. 6/2012
Winner Best Open Source Code 3rd Prize at IEEE CVPR 2012. 6/2012
- Action Bank** 2012
 Code to compute a high-level feature representation of activity in video.
<http://www.cse.buffalo.edu/~jcorso/r/actionbank>
Winner Best Open Source Code 3rd Prize at IEEE CVPR 2012. 6/2012
- Chen Xiph.org** 2011
 Data set to support video label propagation and video semantic segmentation. Contains 8 videos densely labeled (frame-by-frame) into the 21 MSRC classes. The videos are selected from the xiph.org repository.
<http://www.cse.buffalo.edu/~aychen/LabelPropagation/labelpropagation.zip>
- Video Label Propagation** 2011
 Code to propagate an initial segmentation through a video sequence.
<http://www.cse.buffalo.edu/~aychen/LabelPropagation/propagatelabel.m>
- MuleSeg** 2006
 Extensible software for multilevel segmentation of 2D and 3D images based on an extended Segmentation by Weighted Aggregation algorithm using the Bayesian model-aware affinity
- GUSTO** 2002
 System for interactive, hierarchical rendering of large (out-of-core) 3D scalar fields, including unstructured grids, structured grids, and voxels. Jointly with Joshua Leven, Jonathan D. Cohen, and Subodh Kumar.
- XVision2** 2001
 Modular software architecture for real-time vision development. Jointly with Gregory Hager, Darius Burschka, Sam Lang, and Xiangtian Dai.

INDUSTRIAL
 ACTIVITIES

- Consultant for CUBRC, Inc.** BUFFALO, NY 12/2009 - CURRENT
 Various projects related to computer vision and image analysis for defense contracts.

Consultant for Ikona Medical Corp. LOS ANGELES, CA 9/2006 - CURRENT
Development of real-time medical video mosaicking algorithms and software.

Licensed Technology 9/2009
Licensed GPU based reconstruction algorithm for CT data to IRIS (Ionizing Radiation Imaging Systems LLC).

Co-Founder of NaviGuru.com LIVE 4/2006-11/2009
NaviGuru.com was a Web 2.0 site that unifies social networking with on-line mapping technology. It introduced a new form of web search called *visual query*.

Consultant for Infinite Biomedical Technologies, LLC BALTIMORE, MD 9/2006-9/2008
Development of image calibration and dewarping algorithm used in contact endoscopy.

Provisional Patent with Licensable Technology 2003
TITLE: 4D Touchpad - VICs based interface to computer systems.
INSTITUTE: Johns Hopkins University, Baltimore MD (JHU Ref. DM-4181).
CO-INVENTORS: Gregory D. Hager and Darius Burschka.
DESCRIPTION: The 4D Touchpad builds a shared perceptual space between the computer user and a set of video cameras. Perceptual gestures are used to directly interact with interface components. The video cameras sense and interpret the gestures and effect automation in the computer system.

FULL EDUCATION **University of California, Los Angeles** LOS ANGELES, CA
Post-Doc in Neuroscience and Statistics 2006-2007
ADVISORS: Dr. Alan Yuille and Dr. Arthur Toga

The Johns Hopkins University BALTIMORE, MD
Ph.D. in Computer Science 6/2006
ADVISOR: Dr. Gregory D. Hager
DISSERTATION TITLE: *"Techniques for Vision-Based Human-Computer Interaction"*

The Johns Hopkins University BALTIMORE, MD
M.S.E. in Computer Science 6/2002
PROJECT 1 ADVISOR: Dr. Gregory D. Hager, Computational Interaction and Robotics Lab (CIRL)
PROJECT 1 TITLE: *"Planar Surface Tracking Using Direct Stereo"*
PROJECT 2 ADVISOR: Dr. Jonathan Cohen, Graphics Lab
PROJECT 2 TITLE: *"Out-Of-Core Voxelization of Large Scalar Fields for Interactive Multiresolution Volume Rendering"*

Loyola College in Maryland BALTIMORE, MD
B.S. in Computer Science, *Cum Laude*, Ranked First in Major 5/2000
ADVISOR: Dr. Roger Eastman

Chaminade High School MINEOLA, NY

PAST POSITIONS **Assistant Professor** BUFFALO, NY
Computer Science and Engineering
State University of New York at Buffalo 8/2007-8/2013

Post-Doctoral Fellow LOS ANGELES, CA
Neuroscience and Statistics
University of California, Los Angeles 9/2006-11/2007
MENTORS: Drs. Alan Yuille and Arthur Toga
PRIMARY FOCUS: Develop automatic, efficient and robust segmentation and recognition techniques for computational neuroimaging problems with coupled statistical learning methods. Implement and deploy software tools based on these algorithms into the research community.

Post-Doctoral Fellow LOS ANGELES, CA
Radiological Sciences and Statistics
University of California, Los Angeles 9/2005-8/2006
MENTORS: Drs. Alan Yuille and Ricky Taira
PRIMARY FOCUS: Develop automatic segmentation and recognition techniques for medical imaging problems (e.g., brain tumor) by integrating bottom-up detection with top-down models. Quantify statistics of the models' shape and appearance to improve accuracy of diagnosis and treatment.

Research Assistant BALTIMORE, MD
Computer Science
The Johns Hopkins University 8/2001-8/2005

ADVISOR: Dr. Gregory D. Hager
PROJECT: Developing vision-based techniques enabling dynamic, complex interaction in immersive mixed-reality environments: the VICs project.

Research Intern

Siemens Corporate Research

MENTOR: Dr. Yakup Genc

PROJECT: Markerless, real-time camera pose tracking using stereo video for Augmented Reality.

PRINCETON, NJ

SUMMER 2003

Software Engineer

The Johns Hopkins University

DESCRIPTION: Contracted by the Department of Computer Science at The Johns Hopkins University to design and development a SQL-based database and WWW interface for the faculty recruitment/search process. The system remains in use today with no downtime.

BALTIMORE, MD

FALL 2001

Acting Director Of Technology

Bionic Box Inc.

DESCRIPTION: Responsible for all internal IT and managed all (participated in some) software development projects.

BALTIMORE, MD

5/2000-9/2000

Software Engineer

Alexander and Tom, Inc.

URL: <http://www.alextom.com>

RESPONSIBILITIES: Design and development of a broad range of interactive systems including small video-games, database systems, websites, and custom interactive cd-roms.

BALTIMORE, MD

9/1999-5/2000

Research Intern

Earth Satellite Corporation

URL: <http://www.earthsat.com>

PROJECT: Modify and deploy NASA software for radiometrical and geometrical distortion correction for the Landsat 7 satellite.

ROCKVILLE, MD

6/1999-12/2000

Research Assistant

Computer Science

Loyola College in Maryland

ADVISOR: Dr. Keith Gallagher

PROJECT: Development of an ISO 9000-3 compatible software project management tool.

BALTIMORE, MD

SPRING 1999

Hauber Science Research Fellow

Computer Science

Loyola College in Maryland

ADVISOR: Dr. Roger Eastman

PROJECT: Development of an image-processing algorithm for robust registration of retinal nerve images for use in glaucoma diagnosis.

BALTIMORE, MD

SUMMER 1998

Database Programmer

Information Builders, Inc.

URL: <http://www.informationbuilders.com>

RESPONSIBILITIES: Fulfill internal database programming needs for information systems using their proprietary database language and development platforms (FOCUS).

MANHATTAN, NY

SUMMER 1996, 1997 AND WINTER 1997