Publications of Michael A. Greenspan

Refereed Journal Papers and Book Chapters

- R. Zhang, W. Gong, V. Grzeda, A. Yaworski and M. Greenspan, "Scene Dynamics Estimation for Parameter Adjustment of Gaussian Mixture Models", *IEEE Signal Processing Letters*, vol. 21(9):1130-1134, ISSN: 1070-9908, May 2014.
- [2] K. Hughes, H. Fernando, G. Szkilnyk, B. Surgenor and M. Greenspan, "Video Event Detection for Fault Monitoring in Assembly Automation", *International Journal of Intelligent Systems Technologies and Applications*, vol. 13(1-2/2014):103-116, Feb. 2014.
- [3] R. Zhang, W. Gong, V. Grzeda, A. Yaworski and M. Greenspan, "An Adaptive Learning Rate Method for Improving Adaptibility of Background Models", *IEEE Signal Processing Letters*, vol. 20(12):1266-1629, ISSN: 1070-9908, Dec. 2013.
- [4] H. Li and M. Greenspan, "Model-Based Segmentation and Recognition of Dynamic Gestures in Continuous Video Streams", *Pattern Recognition*, vol. 44(8):1614-1628, August 2011.
- [5] B. Taati and M. Greenspan, "Local Shape Descriptor Selection for Object Recognition in Range Data", Computer Vision and Image Understanding, vol. 115(5):681-694, May 2011.
- [6] L. Shang and M. Greenspan, "Real-time Object Recognition in Sparse Range Images Using Error Surface Embedding", *International Journal of Computer Vision*, Springer Netherlands, vol. 89(2-3):211-228, Springer Netherlands, ISSN 0920-5691 (Print) 1573-1405 (Online), Sept. 2010.
- [7] C. Archibald, A. Altman, M. Greenspan and Y. Shoham, "Computational Pool: A New Challenge for Game Theory Pragmatics", AI Magazine, vol. 31(4):33-41, Winter 2010.
- [8] J.-P. Dussault, M. Greenspan, J.-F. Landry, W. Leckie, M. Godard, J. Lam, "Computational and Robotic Pool", *Digital Sport for Performance Enhancement and Competitive Evolution: Intelligent Gaming Technologies*, Information Science Reference, Hershey New York, ISBN 978- 1-60566-406-4 (hardcover), ISBN 978-1-60566-407-1 (ebook), Chapter XII, pp 194-210, 2009.
- [9] Invited Paper: M. Greenspan, J. Lam, W. Leckie, M. Godard, I. Zaidi, K. Anderson, D. Dupuis, and S. Jordan, "Toward a Competitive Pool Playing Robot", *IEEE Computer Magazine*, vol. 41(1):46-53, Jan. 2008.
- [10] W. Leckie and M. Greenspan, "Monte Carlo Methods in Pool Strategy Game Trees", 5th International Conference on Computers and Games: Lecture Notes on Computer Science, No. 4630:244-255, Sept. 2007.
- [11] L. Shang, P. Jasiobedzki, and M. Greenspan, "Model-based Tracking by Classification in a Tiny Discrete Pose Space", *IEEE Transactions on Pattern Analysis* and Machine Intelligence, vol. 29(6):967-989, June 2007.

- [12] S. Zhang and M. Greenspan, "Variable Homography Compensation of Parallax Along Mosaic Seams", *Image Analysis and Recognition: Lecture Notes on Computer Science*, No. 4633:271-284, Aug. 2007.
- [13] W. Leckie and M. Greenspan, "An Event-Based Pool Physics Simulator", *Eleventh Advances in Computer Games: Lecture Notes on Computer Science*, No. 4250:248-263, Eds. H.J van den Herik, S.-C. Hsu, Ts. Hsu, and H.H.L.M. Donkers, Spinger Verlag, Berlin, Sept. 2006.
- [14] M. Greenspan, "PickPocket Wins the Pool Tournament", International Computer Gaming Association Journal, vol. 29(3):153-156, Sept. 2006.
- [15] B. Taati, M. Greenspan, and K. Gupta, "A Dynamic Load-Balancing Parallel Search for Enumerative Robotic Path Planning", *Journal of Intelligent and Robotic Systems*, vol. 47(1):55-85, Sept. 2006.
- [16] I. Wang, M. Greenspan, R.E. Ellis, "Validation of Bone Segmentation and Improved 3-D Registration Using Contour Coherency in CT Data", *IEEE Transactions on Medical Imaging*, vol. 25(3):324-334, Mar. 2006.
- [17] W. Leckie and M. Greenspan, "Pool Physics Simulation by Event Prediction 2: Collisions", International Computer Gaming Association Journal, vol. 29(1):24-31, Mar. 2006.
- [18] W. Leckie and M. Greenspan, "Pool Physics Simulation by Event Prediction 1: Motion Transitions", *International Computer Gaming Association Journal*, vol. 28(4):214-222, Dec. 2005.
- [19] M. Greenspan, "UofA Wins the Pool Tournament", International Computer Gaming Association Journal, vol. 28(3):191-193, Sept. 2005.
- [20] I. Fraser and M. Greenspan, "Color Indexing by Nonparametric Statistics", Image Analysis and Recognition: Lecture Notes on Computer Science, no. 3656:694-702, Sept. 2005.
- [21] W. Yao , P. Abolmaesumi, M. Greenspan, and R.E. Ellis, "An Estimation/Correction Algorithm for Detecting Bone Edges in CT Images", *IEEE Transactions on Medical Imaging*, vol. 24(8):997-1010, Aug. 2005.
- [22] M. Greenspan, "Geometric Probing of Dense Range Data", IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. 4(24):495-508, Apr. 2002.
- [23] I. Gipson, K. Gupta, and M. Greenspan, "MPK: An Open Extensible Motion Planning Kernel", *Journal of Intelligent Robotic Systems*, vol. 8(18):433-443, summer 2001.
- [24] P. Renton, M. Greenspan, H. ElMaraghy, H. Zghal, "Plan-N-Scan: A Robotic System for Collision- Free Autonomous Exploration and Workspace Mapping", *Journal of Intelligent Robotic Systems*, vol. 24(3):207-234, 1999.
- [25] E. Gagnon, J.-F. Rivest, M. Greenspan, N. Burtnyk, "A Computer Assisted Range Image Registration System for Nuclear Waste Cleanup", *IEEE Transactions* on Instrumentation and Measurement, vol. 48(3):758-762, June 1999.

Refereed Conference Papers

- [26] M. Greenspan, L. Xu, J. Chau, "Detection By Registration", to appear in IntelliSys 2017: IEEE Intelligent Systems Conference, London, England, 7-8 September 2017.
- [27] M. Mohamad, M. T. Ahmed, D. Rappaport, and M. Greenspan, "SUPER Generalized 4PCS Algorithm for 3D Registration", *International Conference on 3D Vision (3DV)*, Lyon, France, October 2015.
- [28] E. Deretey, M. T. Ahmed, J. A. Marshall, and M. Greenspan, "Visual indoor positioning using a single camera", *Proceedings of the* 6th International Conference on Indoor Positioning and Indoor Navigation (IPIN), Calgary, Canada, October 2015.
- [29] Best Vision Paper Award: M. T. Ahmed, M. Mohamad, J. A. Marshall, and M. Greenspan, "Registration of noisy point clouds using virtual interest points", in *Proceedings of the* 12th Conference on Computer and Robot Vision (CRV), Halifax, Canada, June 2015.
- [30] M. Mohamed, D. Rappaport and M. Greenspan, "Generalized 4-Points Congruent Sets for 3D Registration", accepted in 3DV 2014: 4rd Joint 3DIM/3DPVT Conference, Tokyo, Japan, 8-11 Dec., 2014.
- [31] Dwaipayan Sinha, Mirza Tahir Ahmed, and M. Greenspan, "Image Retrieval Using Landmark Indexing for Indoor Navigation", CRV 2014: 11th Conference on Computer and Robot Vision, Montreal, Quebec, Canada, 8-9 May 2014.
- [32] J. Lam and M. Greenspan, "Unsupervised Shape Matching of Repeatable Segments", 3DV 2013: 3rd Joint 3DIM/3DPVT Conference, Washington, Seattle, USA, 29 June - 1 July, 2013.
- [33] M. Mohamed, K. Kusevic, P. Mrstick, D. Rappaport, and M. Greenspan, "Automatic Rail Extraction in Terrestrial and Airborne LiDAR Data", 3DV 2013: 3rd Joint 3DIM/3DPVT Conference, Washington, Seattle, USA, 29 June - 1 July, 2013.
- [34] S. Awan, M. Mohamed, K. Kusevic, P. Mrstick, D. Rappaport, and M. Greenspan, "Object Class Recognition in Mobile Urban Lidar Data Using Global Shape Descriptors", 3DV 2013: 3rd Joint 3DIM/3DPVT Conference, Washington, Seattle, USA, 29 June - 1 July, 2013, pp 350-357.
- [35] H. Fernando, K. Hughes, G. Szkilnyk, B. Surgenor and M. Greenspan, "Video Event Fault Detection with STVs: Application to a High Speed Assembly Machine", *Transactions of the North American Manufacturing Research Institution of SME*, vol. 41, pp. 1-8, June 2013.
- [36] K. Hughes, V. Grzeda, and M. Greenspan, "Eigenbackground Bootstrapping", CRV 2013: 10th Conference on Computer and Robot Vision, Regina, Sasketchewan, Canada, 29-31 May, 2013, 8 pages.
- [37] R. Zhang, W. Gong, A. Yaworksi, and M. Greenspan, "Nonparametric Online Background Generation for Surveillance Video", *ICPR 2012:* 21st International Conference on Pattern Recognition, Tsukuba Science City, Japan, 11-15 Nov. 2012.

- [38] D. Macrini, C. Whiten, R. Laganière, and M. Greenspan, "Probabilistic Shape Parsing for View-Based Object Recognition", *ICPR 2012:* 21st International Conference on Pattern Recognition, Tsukuba Science City, Japan, 11-15 Nov. 2012.
- [39] Y. Ioanou, B. Taati, R. Harrap, and M. Greenspan, "The Difference of Normals as a Multi-scale Operator in Unorganized Point Clouds", 3D Imaging, Modeling, Processing, Visualization and Transmission (3DIMPVT), Zurich, Switzerland, 13-15 Oct. 2012, pp 501-508.
- [40] J. Lam and M. Greenspan, "Shape Matching of Repeatable Interest Segments in 3D Point Clouds", Computer Vision and Pattern Recognition Workshops (CVPRW), Providence, Rhode Island, U.S.A., 16 June 2012, pp 25-32.
- [41] J. Lam and M. Greenspan, "On the Repeatability of 3D Point Cloud Segmentation Based on Interest Points", CRV 2012: 9th Conference on Computer and Robot Vision, Toronto, Ontario, Canada, 28-30 May 2012, pp 9-16.
- [42] L. Shang, M. Ketcheson, J. McLean, J. Lam and M. Greenspan, "Real-time 3D Object Recognition and Tracking Prototype", 3DIMPVT 2011: The First Joint 3DIM/3DPVT Conference on 3D Imaging, Modeling, Processing, Visualization, and Transmission, Hangzhou, China, May 16-19, 2011.
- [43] S. Jordan and M. Greenspan, "Projector Optical Distortion Calibration Using Structured Light", PROCAMS 2010: IEEE International Workshop on Projector-Camera Systems, San Francisco, California, June 18, 2010.
- [44] J. Lam, K. Kusevic, P. Mrstik, R. Harrap, and M. Greenspan, "Urban Scene Extraction from Mobile Ground Based LiDAR Data", 3DPVT 2010: Fifth International Sympisium on 3D Data Processing, Visualization, and Transmission, Paris, France, May 17-20, 2010.
- [45] Y. Ioanou, L. Shang, R. Harrap, and M. Greenspan, "Local Potential Well Space Embedding", 3DIM 2009: 2009 IEEE Workshop on 3D Digital Imaging and Modeling, Kyoto, Japan, October 3-4, 2009.
- [46] M. Belshaw and M. Greenspan, "A High Speed Iterative Closest Point Tracker on an FPGA Platform", 3DIM 2009: 2009 IEEE Workshop on 3D Digital Imaging and Modeling, Kyoto, Japan, October 3-4, 2009.
- [47] Best Paper Award and Best Student Paper Award: J. Lam and M. Greenspan, "Eye-In-Hand Visual Servoing for Accurate Shooting in Pool Robotics", CRV 2008: 5th Canadian Conference on Computer and Robot Vision, Windsor, Ontario, Canada, 27-30 May 2008, pp 11-17.
- [48] J. Lam and M. Greenspan, "An Iterative Algebraic Approach to TCF Matrix Estimation", IROS 2007: IEEE/RSJ 2007 International Conference on Intelligent Robots and Systems, San Diego, CA, USA, 29 Oct.-2 Nov. 2007, pp 3848-3853.
- [49] B. Taati and M. Greenspan, "Variable Dimensional Local Shape Descriptors for Object Recognition in Range Data", 3dRR-07: ICCV '07 Workshop on 3D Representation for Recognition, Rio de Janeiro, Brazil, 20 Oct. 2007, ISBN 978-142441631-8, 8 pages.

- [50] B. Taati, M. Bondy, P. Jasiobedzki, and M. Greenspan, "Automatic Registration for Model Building Using Variable Dimensional Local Shape Descriptors", 3DIM 2007: The 6th International Conference on 3-D Digital Imaging and Modeling, Montreal, Quebec, Canada, Aug. 21-23, 2007, pp 265-272.
- [51] L. Shang and M. Greenspan, "Pose Determination by Potential Well Space Embedding", 3DIM 2007: The 6th International Conference on 3-D Digital Imaging and Modeling, Montreal, Quebec, Canada, Aug. 21-23, 2007, pp 297-304.
- [52] H. Li and M. Greenspan, "Segmentation and Recognition of Continuous Gestures", *ICIP 2007: the IEEE 2007 International Conference on Image Processing*, San Antonio, Texas, Sept. 16-19, 2007.
- [53] Invited Paper: M. Greenspan, J. Lam, W. Leckie, M. Godard, I. Zaidi, K. Anderson, D. Dupuis, and S. Jordan, "Toward a Competitive Pool Playing Robot: Do We Need Intelligence to Play Pool?", CIG 2007: IEEE Symposium on Computational Intelligence and Games, Honolulu, Hawaii, 1-5 April 2007, 9 pgs.
- [54] Invited Paper: M. Greenspan, L.I. Wang, and R.E. Ellis, "Validation and Improved Registration of Bone Segmentation Using Contour Coherency", EMBC 2006: IEEE 2006 International Conference of the Engineering in Medicine and Biology Society, New York City, New York, USA, 30 Aug. 3 Sept. 2006, 4 pgs.
- [55] J. Lam, F. Long, G. Roth, and M. Greenspan, "Determining Shot Accuracy of a Robotic Pool System", CRV 2006: 3rd Canadian Conference on Computer and Robot Vision, Quebec City, Quebec, Canada, 7-9 June 2006, 8 pgs.
- [56] W. Leckie and M. Greenspan, "Monte Carlo Methods in Pool Strategy Game Trees", 5th International Conference on Computers and Games, Torino, Italy, 29-31 May, 2006, 12 pgs.
- [57] H. Li and M. Greenspan, "Multi-Scale Gesture Recognition from Time-Varying Contours", *ICCV 2005: Proc. International Conference on Computer Vision*, vol 1, Beijing, China, 2005, pp 236-243.
- [58] H. Li and M. Greenspan, "Continuous Time-Varying Gesture Segmentation by Dynamic Time Warping of Compound Gesture Models", *HAREM 2005: International Workshop on Human Activity Recognition and Modelling*, Oxford, U.K., 9 Sept. 2005, pp 35-42.
- [59] B. Taati and M. Greenspan, "Satellite Pose Acquisition and Tracking with Variable Dimensional Local Shape Descriptors", *IEEE/RSJ IROS Workshop on Robot Vision for Space Applications*, Edmonton, Canada, 5 Aug. 2005, pp 4-9.
- [60] L. Shang, P. Jasiobedzki, and M. Greenspan, "Discrete Pose Space Estimation to Improve ICP- Based Tracking", Proc. 5th International Conference on Three Dimensional Imaging and Modeling, Ottawa, Canada, 13-16 June 2005, pp 523-530.
- [61] F. Long, J. Herland, M.-C. Tessier, D. Naulls, A. Roth, G. Roth, and M. Greenspan, "Robotic Pool: An Experiment in Automatic Potting", *IROS'04: IEEE/RSJ International Conference on Intelligent Robotics and Systems*, vol. 3, Sendai, Japan, 28 Sept. 2 Oct. 2004, pp 2520-2525.

- [62] M. Greenspan, L. Shang and P. Jasiobedzki, "Efficient Tracking with the Bounded Hough Transform", CVPR04: IEEE Computer Society International Conference on Computer Vision and Pattern Recognition, vol. 1, Washington D.C., 27 June -2 July 2004, pp 520-527.
- [63] G. Yang, M. Bondy, M. Greenspan, P. Jasiobedzki, and M. Doyon, "On-Orbit Safety Monitoring System - Development and Applications", *RoManSy 2004*, 15th *CISM IFTOMM Symposium on Robot Design, Dynamics and Control*, Montreal, Canada, June 14-18, 2004.
- [64] M. Greenspan and M. Yurick, "An Approximate K-D Tree Search for Efficient ICP", 3DIM03: 4th International Conference on 3-D Digital Imaging and Modeling, Banff, Alberta, Canada, Oct. 6-10, 2003.
- [65] M. Greenspan and I. Fraser, "Tracking a Sphere Dipole", Vision Interface 2003, Halifax, Nova Scotia, Canada, June 11-13, 2003, pp 154-161.
- [66] M. Greenspan and P. Jasiobedzki, "Pose Determination of a Free-Flying Satellite", CISST2002: the 2002 International Conference on Imaging Science, Systems, and Technology, Las Vegas, USA, June 24-27, 2002. pp 62-67.
- [67] C. Shu, M. Greenspan, G. Godin, "Nearest Neighbor Search Through Function Minimization", 13th Canadian Conference on Computational Geometry, Waterloo , Canada , August 2001, pp 157-160.
- [68] M. Greenspan and G. Godin, "A Nearest Neighbor Method for Efficient ICP", 3DIM'01 : 3rd International Conference on 3-D Digital Imaging and Modeling, Quebec City, Quebec, Canada, May 28-June 1, 2001, pp 161-168.
- [69] C. Langis, M. Greenspan and G. Godin, "The Parallel Iterative Closest Point Algorithm", 3DIM'01: 3rd International Conference on 3-D Digital Imaging and Modeling, Quebec City, Quebec, Canada, May 28-June 1, 2001, pp 195-202.
- [70] M. Greenspan, G. Godin, and J. Talbot, "Acceleration of Binning Nearest Neighbor Methods", Vision Interface 2000, Montreal, Quebec, Canada, May 14-17, 2000.
- [71] M. Rioux, F. Blais, A.B.Beraldin, G. Godin, P. Boulanger and M. Greenspan, "Beyond Range Sensing: XYZ-RGB Digitizing and Modeling", *ICRA 2000: Pro*ceedings of the IEEE International Conference on Robotics and Automation, San Francisco, CA, April 2000, pp 111-115.
- [72] M. Greenspan and P. Boulanger, "Efficient and Reliable Template Set Matching for 3D Object Recognition", 3DIM'99 : 2nd International Conference on 3-D Digital Imaging and Modeling, Ottawa, Canada, Oct. 4-8, 1999, pp 230-239.
- [73] D.G. Lamb, D.L. Baird and M. Greenspan, "An Automation System for Industrial 3-D Laser Digitizing", 3DIM'99 : 2nd International Conference on 3-D Digital Imaging and Modeling, Ottawa, Canada, Oct. 4-8, 1999, pp 148-157.
- [74] M. Greenspan., "The Sample Tree: A Sequential Hypothesis Testing Approach to 3D Object Recognition", CVPR98 : Computer Vision and Pattern Recognition 98, Santa Barbara, CA., June 23-25, 1998, pp 772-779.

- [75] M. Greenspan, "A Decision Tree Classifier for Object Recognition in Range Imagery", Vision Interface 98, Vancouver, B.C., June 17-20, 1998, pp 181-188.
- [76] M. Greenspan, J. Ballantyne, and M.G. Lipsett, "Sticky and Slippery Collision Avoidance for Tele- Excavation", *IROS97 : IEEE/RSJ International Conference* on *Intelligent Robots and Systems*, Grenoble , France , September 7-11, 1997, pp 1666-1671.
- [77] J. Ballantyne, M. Greenspan, and M.G. Lipsett, "Virtual Environments for Remote Operations", ANS 7th Topical Meeting on Robotics and Remote Systems, Augusta, GE. April 27 - May 1, 1997.
- [78] E. Gagnon, J.-F. Rivest, M. Greenspan, and N. Burtnyk, "A Computer Assisted Range Image Registration System for Nuclear Waste Cleanup", IMTC/96 Joint Conference : IEEE Instrumentation & Measurement Conference & IMEKO Technical Committee 7, Brussels, Belgium, June 4-6, 1996.
- [79] M. Easter, D. Johnston, and M. Greenspan, "Realtime Collision Prediction on a Machine Tool", 1996 CSME Forum - Engineering Applications of Mechanics, Hamilton, Ontario, May 1-9 1996.
- [80] M. Greenspan and N. Burtnyk, "Obstacle Count Independent Real-Time Collision Avoidance", *ICRA96: 1996 IEEE International Conference on Robotics and Automation*, vol 2, April 22-29, Minneapolis, 1996, pp 1073-1080.
- [81] M. Greenspan, M.G. Lipsett, J. Ballantyne, P. Renton, E. Gagnon, and N. Burtnyk, "Laser Range Vision for Tele-Excavation", 1995 Robotics and Knowledge Based Systems Workshop, Montreal, Quebec, Oct. 15-18, 1995.
- [82] P. Renton, M. Greenspan, N. Burtnyk, and H. ElMaraghy, "Scan-n-Plan : Collision-Free Autonomous Workspace Exploration", 1995 Robotics and Knowledge Based Systems Workshop, Montreal, Quebec, Oct. 15-18, 1995.
- [83] N. Burtnyk and M. Greenspan, "Multiple View Registration of Range Data Using Signature Search", American Nuclear Society Sixth Topical Meeting on Robotics and Remote Systems, Monterey, CA. Feb. 5- 10, 1995.
- [84] N. Burtnyk and M. Greenspan, "Signature Search Method for 3-D Pose Refinement with Range Data", 1994 IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems, Las Vegas, NV. Oct 2-5, 1994.
- [85] M. Greenspan and D. Johnston, "Collision Avoidance A Component for Automated Manufacturing", MAPLE 93 Symposium on Manufacturing Application Programming, Ottawa, Ont., Oct.4-5 1993. pp 127-133.
- [86] N. Burtnyk and M. Greenspan, "Supervised autonomy Partitioning Telerobotic Responsibilities Between Human and Machine", *International Conference on Intelligent Teleoperation*, Greensboro, NC. November 6-7, 1991, pp 34-42.

Conference Papers Reviewed by Abstract

- [87] V. Panwar, P. Jasiobedzki, and M. Greenspan, "Interest Point Sampling for Range Data Registration in Visual Odometry", accepted in i-Sairas 2012: International Symposium on Artificial Intelligence, Robotics and Automation in Space, Turin, Italy, 4-6 Sept. 2012.
- [88] P. Jasiobedzki, S. Se, T. Pan, M. Umathusan, M. Greenspan, "Autonomous Satellite Rendezvous and Docking Using LIDAR and Model Based Vision", Proc. SPIE vol. 5798: Spaceborne Sensors II, Mar. 2005, pp 54-65.
- [89] P. Jasiobedzki, M. Greenspan, G. Roth, N. Ng, and N. Witcomb, "Video-based Systems for Satellite Proximity Operations", Astra 2002: The 7th ESA Workshop on Advanced Space Technologies for Robotics and Automation, Estec, Nordwijk, the Netherlands, Nov. 19-21, 2002.
- [90] R. Gillett, M. Greenspan, L. Hartman, E. Dupuis, and D. Terzopoulos, "Remote Operation with Supervised Autonomy (ROSA)", *iSAIRAS 2001: 6th Intl. Symp. Artificial Intelligence*, Robotics and Automation in Space, Montreal, Canada, June 18-22, 2001.
- [91] P. Jasiobedzki, M. Greenspan and G. Roth, "Pose Determination and Tracking for Autonomous Satellite Capture", *iSAIRAS 2001: 6th International Symposium on Artificial Intelligence*, Robotics, and Automation in Space, Montreal, Canada , June 18-22, 2001.
- [92] E. Gagnon, M. Greenspan and W.J. Ballantyne, "A Novel Real-Time Surface Following Algorithm", SPIE Photonics East : Intelligent Systems and Manufacturing, Pittsburgh, PN. October 14-17, 1997.
- [93] M.G. Lipsett, W.J. Ballantyne and M. Greenspan, "Virtual Environments for Remote Surface Mining Operations", CIM 7th Canadian Symposium on Mining Automation Conference, Fort McMurray, AB., September 17-19, 1997.
- [94] M. Greenspan, "Collision Avoidance for Automated Inspection", SPIE Photonics East : SPIE International Symposium on Intelligent Systems and Advanced Manufacturing, vol. 2910, pp 67-78, November 1996.
- [95] M.G. Lipsett, M. Greenspan and W.J. Ballantyne, "Using Range Vision for Telerobotic Control in Hazardous Environments", CNA/CNS Conference, Fredericton New Brunswick, June 9-12, 1996.

Patents

- [96] M. Greenspan, "Method and Apparatus for Positional Error Correction in a Robotic Pool System Using a Cue-Aligned Local Camera", United States Patent no. 7,831,337, Nov. 9, 2010.
- [97] M. Greenspan and N. Burtnyk, "Real Time Collision Detection", Canadian Patent no. 2,120,534, May 4, 2004.
- [98] M. Greenspan, "Method for Recognizing 3D Objects in Range Images", United States Patent no. 6,026,189, Feb. 15, 2000.

- [99] N. Burtnyk and M. Greenspan, "System for Determining the Pose of An Object Which Utilizes Range Profiles and Synthetic Profiles Derived from a Model", United States Patent no. 5,471,541, Nov. 28, 1995.
- [100] M. Greenspan and N. Burtnyk, "Real Time Collision Detection", United States Patent no. 5,347,459, Sept. 13, 1994.

Reports

- [101] M. T. Ahmed and M. Greenspan, "Laser Profiling for Real-Time Sugar Cane Joint Recognition: a technical report submitted to Transformix Engineering Inc. under the FedDev project", in preparation, April 2012.
- [102] M. Greenspan, "OSM Embedded CD System Architecture: a technical report submitted to MDRobotics Inc. under the OSM project", Saikl Technologies Inc., 22 Feb. 2004, 17 pages
- [103] M. Greenspan, "OSM Embedded CD User's and Test Guide: a technical report submitted to MDRobotics Inc. under the OSM project", *Saikl Technologies Inc.*, 22 Feb. 2004, 15 pages.
- [104] M. Greenspan (plus10 others), "Defense Sciences Advisory Board: Report of the Autonomous Intelligent Systems Study Group", (classified), summer 2003.
- [105] M. Greenspan, "Comparison of Embedded Collision Detection Methods for the On-Orbit Safety Monitor: a technical report submitted to MDRobotics Inc. under the OSM project", Saikl Technologies Inc., 2 Feb. 2003, 33 pages.
- [106] M. Greenspan, "Pose Determination of a Free-Flying Satellite from Sparse Range Data: a technical report submitted to MDRobotics Inc. under the ROSA project", *Saikl Technologies Inc.*, 8 May 2002.

Theses

- [107] M. Greenspan, "Geometric Probing for 3D Object Recognition in Dense Range Data", Ph.D. Thesis, Carleton University, Ottawa, Canada, 1999.
- [108] M. Greenspan, "A Robotic Tactile Sensing System", M.A.Sc. Thesis, University of Ottawa, Ottawa, Canada, 1991.