Lawrence O'Higgins Hall
Curriculum Vitae
May 31, 2022

Distinguished University Professor
Department of Computer Science and Engineering
4202 E. Fowler Ave. ENB118
University of South Florida
Tampa, Fl. 33620
Ph: H. 813-971-0129
W. 813-974-4195
Fax: 813-974-5456
e-mail: lohall@mail.usf.edu

Biography: Larry Hall is a Distinguished University Professor in the Department of Computer Science and Engineering at the University of South Florida. He was Chair from 01/2008-8/2015 during which time the Department grew to 33 faculty including 25 tenure-track faculty. The Department integrated an undergraduate information technology program in the Spring of 2014. The Department received a 2014 TEAm grant from the State of Florida to increase graduates in Computer Science, Computer, Engineering and Information Technology. He currently serves as Co-Director of the USF Institute for Artificial Intelligence + X.

Professor Hall serves as the Vice President (and Chair) of the IEEE Publications Services and Products Board 21-22. He is a past President of the IEEE Systems, Man, and Cybernetics Society, a former EIC of the IEEE Transactions on Systems, Man, and Cybernetics Part B: Cybernetics and a fellow of the IEEE, the International Association of Pattern Recognition, AAAS and AIMBE. He was awarded the 2012 IEEE SMC Society Norbert Wiener Award and the 2017 Joseph Wohl award and the IEEE CIS 2021 Fuzzy Pioneer Awar.d He has served on the North American Fuzzy Information Processing Society board and as their President for three years. He has served on the administrative committee of the IEEE Computational Intelligence Society and the International Fuzzy Systems Association.

He has published over 100 journal papers in the areas of approximate reasoning, data mining, and pattern recognition. He has published numerous conference papers and given a number of keynote addresses. He has mentored thirty-one Ph.D. students as well as over forty Masters students. He earned an award for outstanding mentorship in the McNair program for minority undergraduate students. He has received significant external funding from NIH, NSF, DOE, NASA, DARPA and others.

Education:

Ph.D. in Computer Science, Florida State University, 1986.
M.S. in Mathematics - Computer Science Option, Florida State University, 1982.
B.S. in Applied Mathematics, Florida Institute of Technology, 1980.

Work Experience :

8/86 -	University of South Florida Tampa, Florida **Distinguished University Professor (11), Dept. Chair (08-15)**, Professor (96), Associate (91-), Assistant (86-91)
8/15-12/15	University of Notre Dame, Notre Dame, Indiana Melchor Visiting Professor of Computer Science and Engineering Distinguished Fellow of the Notre Dame Institute for Advanced Study
8/99-12/99	University of California, Berkeley Division of Computer Science, Visiting Scholar
SUMMER 90	USAF Summer Faculty Research Program Automated Target Recognition Branch, Wright Patterson AFB
SUMMER 89	Navy Summer Faculty Research Program Naval Research Lab, Artificial Intelligence Center
SUMMER 87-88	NASA-Ames Research Center NASA-ASEE fellowship to participate in the Stanford-Ames summer research program. Researched parallel inference algorithms and the specification of the space borne symbolic processor.
6/84 - 8/86	Florida State University Tallahassee, Florida Research Assistant: Developed concepts for an Intelligent Computer Aided Instructional System. Developed theory and practice of a multiple knowledge source Fuzzy Expert System. System has been applied to tree classification.
9/82 - 5/84 St. Petersburg, Florida	E-SYSTEMS, ECI DIVISION Engineer: Worked on several packet switched networks. Designed TCP, IP, and Telnet protocol layers for a Satellite packet system. A working prototype was implemented in Ada on a MC68000. Designed and implemented upgrades to an in house packet radio system. Designed and implemented an emulation of a cryptographic transmission device. Both in house system and emulation were done in Z8000 assembly language.

9/80 - 8/82 Florida State University
Tallahassee, Florida

Teaching Staff: Taught Trigonometry, College Algebra, and Business Math. Assisted with Pascal, Data Structures and Assembly Language. Designed and taught FORTRAN 77 class for specialists and non-specialists. Taught computer use class.

Awards and Memberships:
IEEE Fellow 2003, International Association of Pattern Recognition Fellow 2010, 2012 IEEE SMC Society Norbert Wiener Award, AAAS Fellow 2013, Visiting Distinguished Professor - 2015 - University of Technology, Sydney, 2017 Theodore and Venette Askounes-Ashford Distinguished Scholar Award, 2017 IEEE SMC Joseph G. Wohl Award, 2018 AIMBE Fellow, Honorable Mention Best paper IEEE ICDM Workshop on Data Mining Case Studies 2011, Research Faculty Mentor of the year USF McNair Program 2006, Outstanding Research Contribution USF 2004, IEEE SMC Society award for Outstanding Contributions 1997, 2000, 2008, NAFIPS Outstanding Contribution K.S. Fu Award 1998, Outstanding Young Researcher in the College of Engineering 1991, Member IEEE, AAAS, and ACM. Member Blue Key national honor fraternity. Who's who in Science and Engineering 1997-8,2004-, Who's Who in the World 2006, American Men and Women of Science, 2001-2002

Refereed Journal Publications:

- *Studies in Possibilistic Recognition*, Fuzzy Sets and Systems, Vol. 17, pp. 167-179, 1985. (With A. Kandel)
- *On the Derivation of Memberships for Fuzzy Sets in Expert Systems*, Information Sciences, 40, 39-52, 1986. (With A. Kandel and S. Szabo)
- *Towards a Methodology for Building Expert Systems for Imprecise Domains*, International Journal of Expert Systems: Research and Applications, V. 1, No. 3, 1987, pp. 237-252. (With A. Kandel)
- *On the Validation and Testing of Fuzzy Expert Systems*, IEEE Transactions on Systems, Man and Cybernetics, V. 18, No. 6, pp. 1023-1027, 1988. (With M. Friedman and A. Kandel).
- *The Choice of Ply Operator in Fuzzy Intelligent Systems*, Fuzzy Sets and Systems, 34, pp. 135-144, 1990.
- *On Fuzzy Codes for Asymmetric and Unidirectional Errors*, Fuzzy Sets and Systems, 36, pp.365-373, 1990. (With G. Dial).
- *Backpac: A Parallel Goal Driven Reasoning System*, Information Sciences, V. 62, pp. 169-182, 1992.
- *Decision Making on Creditworthiness, Using a Fuzzy Connectionist Model*, Fuzzy Sets and Systems, V. 48, No. 1, pp. 15-22, 1992, (With S. Romaniuk).

- *Experimental Results from Parallel Backward-chained Expert Systems*, International Journal of Intelligent Systems, V. 7, No. 6, pp. 505-512, 1992.
- *A Comparison of Neural Network and Fuzzy Clustering Techniques in Segmenting Magnetic Resonance Images of the Brain*, IEEE Transactions on Neural Networks, (1992) V. 3, No. 5, pp. 672-682. (With J. Bezdek, A. Bensaid, L. Clarke, M. Silbiger, and R. Velthuizen)
- *Evaluation of Machine Learning Tools Using Real Manufacturing Data*, International Journal of Expert Systems: Research and Applications, (1992) V. 5, No. 4, pp. 299-318, (With R. Perez, S. Romaniuk and J.T. Lilkendey).
- *Methods for combination of evidence in function-based 3-D object recognition*, International Journal of Pattern Recognition and Artificial Intelligence, **7** (3), 573-594, (June 1993), (With L. Stark and K. W. Bowyer).
- *SCNET: A Hybrid Connectionist, Symbolic System*, Information Sciences, V. 71, No. 3, July 1993, pg. 223-268, (With S.G. Romaniuk).
- *Parallel Search Using Transformation-Ordering Iterative-Deepening-A**, International Journal of Intelligent Systems, 8/8 (SEP 1993), p. 855-873. (With D. Cook and W. Thomas).
- *Divide and Conquer Neural Networks*, Neural Networks, V. 6, pp. 1105-1116, 1993. (With S. G. Romaniuk).
- *Some Comments on and an extension to Activity Structures for Intelligent Systems*, Journal of Fuzzy Logic and Intelligent Systems, V. 3, No. 1pp. 23-28, 1993.
- *Review of MR Image Segmentation Techniques using Pattern Recognition*, Medical Physics, v. 20, No. 4, pp. 1033-1048, 1993. (With J.C. Bezdek, L.P. Clarke).
- *Knowledge-based Classification and Tissue Labeling of MR Images of Human Brain*, IEEE Transactions on Medical Imaging, V. 12, No. 4, pp. 740-750, Dec. 1993. (With C. Li, D. Goldgof)
- *MRI Segmentation Using Fuzzy Clustering Techniques: Integrating Knowledge*, Engineering in Medicine and Biology, 1994, V. 13, No. 5 pp. 730-742. (With M. Clark, D. Goldgof, L. Clarke, M. Silbiger, C. Li)
- *Application of fuzzy c-means segmentation technique for tissue differentiation in MR images of a hemorrhagic glioblastoma multiforme.* Magnetic Resonance Imaging 13 (2), 1995, pp. 277-290. (with Phillips WE, Velthuizen RP, Phuphanich S, Viloria J, Clarke LP and Silbiger ML)
- *Review of MRI segmentation: methods and applications*, in Magnetic Resonance Imaging, 1995. V. 13, No. 3, pp. 343-368 (With Clarke LP, Velthuizen RP, Camacho,MA, Heine JJ, Vaidyanathan, M., Hall, LO, Thatcher RW, Silbiger ML)
- *Comparison of Supervised MRI Segmentation Methods for Tumor Volume Determination During Therapy*, Magnetic Resonance Imaging, 1995, V. 13, No. 5., pp. 719-728. (with M. Vaidyanathan, L.P. Clarke, R.P. Velthuizen, S. Phuphanich, A.M. Bensaid, L.O. Hall, J.C. Bezdek, M. Silbiger)
- R.P. Velthuizen, S. Phuphanich, L.P. Clarke, L.O. Hall, A.M. Bensaid, J.A. Arrington, M. Silbiger, *Unsupervised Brain Tumor Volume Measurement Using Magnetic Resonance Images*, Journal of Magnetic Resonance Imaging, V. 5, No. 5, pp. 594-605, 1995.

- A. Bensaid, J. Bezdek, L.O. Hall, L.P. Clarke, *Partially Supervised Clustering for Image Segmentation*, Pattern Recognition, V. 29, No. 5, pp. 859-871, 1996.
- *Learning Membership Functions in a Function-Based Object Recognition System*, Journal of Artificial Intelligence Research, pp. 187-222, Nov. 1995. (With Kevin Woods, Diane Cook, L. Stark, K. Bowyer)
- *Validity-Guided (Re)Clustering for Image Segmentation*, IEEE Transactions on Fuzzy Systems, V. 4, No. 2, May, pp. 112-123, 1996. (With A. Bensaid, J. Bezdek, L.P. Clarke, M.L. Silbiger, J.A. Arrington, R.F. Murtagh)
- *An Encoding of Production Rules in a Connectionist Network*, Journal of Intelligent and Fuzzy Systems, 4 (1), pp. 1-18, Feb. 1996, (with K. Sanou, S. Romaniuk)
- L.O. Hall, *Confirmation and Denial as plausible modes of fuzzy inference*, Fuzzy Sets and Systems, V. 86, No. 3, March, pp. 307-309, 1997.
- Cheng, T.W., Goldgof, D.B. and Hall, L.O., *Fast Fuzzy Clustering*, Fuzzy Sets and Systems, V. 93, pp. 49-56, 1998.
- Velthuizen, Robert P., Hall, Laurence O., Clarke, Laurence P. Initial investigation of feature extraction with genetic algorithms for fuzzy clustering. Biomedical Engineering Applications Basis Communications 8(6), 496-517, 1996.
- Velthuizen, R.P., Hall, L.O., Clarke, L.P. and Silbiger, M.L., *An Investigation of Mountain Method Clustering for Large Data Sets*, Pattern Recognition, V. 30, No. 7, 1121-1135, 1997.
- Vaidyanathan M, Clarke LP, Heidman C, Velthuizen RP, Hall LO, *Normal brain volume measurement using multi-spectral MRI segmentation*, Magnetic Resonance Imaging 15(1), 87-97, 1997.
- Vaidyanathan M, Clarke LP, Hall LO, Heidtman C, Velthuizen R, Gosche K, Phuphanich S, Wagner H, Greenburg H and Silbiger ML., *Monitoring brain tumor response to therapy using MRI segmentation*, Magnetic Resonance Imaging, 15(3), 323-334, 1997.
- Bezdek, J. C., Hall, L. O., Clark, M. C., Goldgof, D. B. and Clarke, L. P., Medical image analysis with fuzzy models, Stat. Meth. in Medical Research, 6, 191-214, 1997.
- Ozyurt, B.I., Sunol, A.K., Camurdan, M., Mogili, P. and Hall, L. (1998), *Chemical Plant Fault Diagnosis Through a Hybrid Symbolic Connectionist Approach and Comparison with neural networks*, Computers and Chemical Engineering, V. 22, No 1-2, pp. 299-321.
- Clarke LP, Velthuizen RP, Clark M, Gaviria G, Hall L, Goldgof D, Murtagh R, Phuphanich S and Brem S. "MRI Measurement of Brain Tumor Response: Comparison of Visual Metric and Automatic Segmentation", Magnetic Resonance Imaging, 16: (3) 271-279 APR 1998.
- Clark, M.C., Hall, L.O., Goldgof, D.B., Velthuizen, R., Murtagh, F.R., and Silbiger, M.S., Automatic Tumor Segmentation Using Knowledge-Based Techniques, *IEEE Transactions on Medical Imaging*, V. 17, No. 2, pp. 187-201, 1998.
- Hall, L.O. and Lande, P., Generation of Fuzzy Rules from Decision Trees, *Journal of Advanced Computational Intelligence*, V. 2, No. 4, pp. 128-133, 1998.

- Ozyurt, I.B., Hall, L.O., and Sunol, A.K., SQFDiag: Semi-quantitative Model Based Fault Monitoring and Diagnosis via Episodic Fuzzy Rules, *IEEE Transactions on Systems, Man and Cybernetics*, V. 29, No. 3, Part A, pp. 294-306, 1999.

- Hall, L.O., Ozyurt, I.B., and Bezdek, J.C., Clustering with a Genetically Optimized Approach, *IEEE Transactions on Evolutionary Computation*, V. 3, No. 2, pp. 103-112, 1999.

- R.P. Velthuizen, L.O. Hall and L.P. Clarke, Feature Extraction for MRI Segmentation, *J. Neuroimaging* 1999, v. 9, pp. 85-90.

- M. Zhang, L.O. Hall, F.E. Muller-Karger, and D.B. Goldgof, Knowledge-Guided Classification of Coastal Zone Color Images off the West Florida Shelf, *International Journal of Pattern Recognition and Artificial Intelligence*, V. 14, No. 8, 2000, pp. 987-1007.

- L.M. Fletcher-Heath, L.O. Hall, D.B. Goldgof and F. Reed Murtagh, Automatic Segmentation of Non-enhancing Brain Tumors in Magnetic Resonance Images, *Artificial Intelligence in Medicine*, V. 21, pp. 43-63, 2001.

- L.O. Hall, Rule Chaining in Fuzzy Expert Systems, *IEEE Transactions on Fuzzy Systems*, V. 9, No. 6, pp. 822-827, 2001.

- K.W. Bowyer and L.O. Hall, Reducing Effects of Plagiarism in Programming Classes, *Journal of Information Systems Education*, V. 12, No. 3., 2001.

- S. Eschrich and N.V. Chawla and L.O. Hall, Learning to predict in complex biological domains, *Journal of System Simulation*, Volume 14, Issue 11, 2002, Pages 1464-1471.

- N. Chawla, K.W. Bowyer, L.O. Hall, W.P. Kegelmeyer, SMOTE: Synthetic Minority Over-sampling TEchnique, *Journal of Artificial Intelligence Research*, Volume 16, pages 321-357, 2002.

- Mingrui Zhang and Lawrence O. Hall and Dmitry B. Goldgof, A Generic Knowledge-Guided Image Segmentation and Labeling System Using Fuzzy Clustering Algorithms, *IEEE Transactions on Systems, Man, and Cybernetics, Part B*, http://ieeexplore.ieee.org/, V. 32, No. 5, pp. 571-582, 2002.

- S. Eschrich, J. Ke, L.O. Hall and D.B. Goldgof, Fast Accurate Fuzzy Clustering through Data Reduction, *IEEE Transactions on Fuzzy Systems*, 11, 2, pp. 262-270 2003.

- N.V. Chawla, T.E. Moore, Jr., L.O. Hall, K.W. Bowyer, W.P. Kegelmeyer and C. Springer, Distributed Learning with Bagging-Like Performance, *Pattern Recognition Letters*, Vol. 24 (1-3) pp. 455-471, 2003.

- M.R. Berthold and L.O. Hall, Visualizing Fuzzy Points in Parallel Coordinates, *IEEE Transactions on Fuzzy Systems*, V. 11, No. 2, pp. 262-270, 2003.

- L.O. Hall, K.W. Bowyer, R.E. Banfield, S. Eschrich and R. Collins, Is Error-Based Pruning Redeemable?, *International Journal on Artificial Intelligence Tools: Architectures, Languages, Algorithms*, V. 12, No. 3, pp. 249-264, 2003.

- Nitesh V. Chawla, Lawrence O. Hall, Kevin W. Bowyer, W. Philip Kegelmeyer, Learning ensembles from bites: A scalable and accurate approach, *Journal of Machine Learning Research*, Vol 5, pp 421–451, April 2004.

- Xiaomei Liu, Lawrence O. Hall, and Kevin W. Bowyer, Comments on "A parallel Mixture of SVMs for Very Large Scale Problems", *Neural Computation*, vol. 16, No. 7, pp. 1345-1351, July, 2004.
- E. Fink, P.K. Kokku, S. Nikiforou, L.O. Hall, D.B. Goldgof, J.P. Krischer, Selection of Patients for Clinical Trials: An Interactive Web-Based System, *Artificial Intelligence in Medicine*, 31(3), 241-254, July 2004.
- Luo, T.; Kramer, K.; Goldgof, D.B.; Hall, L.O.; Samson, S.; Remsen, A. and Hopkins, T., Recognizing Plankton Images From the Shadow Image Particle Profiling Evaluation Recorder, *IEEE Transactions on Systems, Man and Cybernetics, Part B*, V. 34, No. 4, pp. 1753-1762, 2004.
- R.E. Banfield, L.O. Hall, K.W. Bowyer, and W. Philip, Kegelmeyer, Ensemble diversity measures and their application to Thinning, *Information Fusion*, V. 6, pages 49-62, 2005.
- T. Luo, K. Kramer, D.B. Goldgof, L.O. Hall, S. Samson, A. Remsen, T. Hopkins, Active Learning to Recognize Multiple Types of Plankton, *Journal of Machine Learning Research*, 6(Apr):589–613, 2005.
- Yong Zhang, L. O. Hall, D. B. Goldgof and S. Sarkar, A Constrained Genetic Approach for Computing Material Property of Elastic Objects, *IEEE Transactions on Evolutionary Computing*, V. 10, No. 3, pp. 341-357, 2006.
- A. A. Maudsley, A. Darkazanli, J. R. Alger, L. O. Hall, N. Schuff, C. Studholme, Y. Yu, A. Ebel, A. Frew, D. Goldgof, Y. Gu, R. Pagare, F. Rousseau, K. Sivasankaran, B. J. Soher, P. Weber, K. Young and X. Zhu, Comprehensive processing, display and analysis for in vivo MR spectroscopic imaging, *NMR in Biomedicine*, V. 19, 492-503, 2006.
- P.M. Kanade and L.O. Hall, Fuzzy Ants and Clustering, *IEEE Transactions on Systems, Man and Cybernetics, Part A*, V. 37, N. 5, pp. 758-769, 2007.
- R.E. Banfield, L.O. Hall, K.W. Bowyer, and W. Philip, Kegelmeyer, A Comparison of Decision Tree Ensemble Creation Techniques, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, V. 29, No. 1, pp. 173-180, January 2007.
- L. Shoemaker, R.E. Banfield, L.O. Hall, K.W. Bowyer and W. P. Kegelmeyer, Using Classifier Ensembles to Label Spatially Disjoint Data, *Information Fusion*, Volume 9 , Issue 1, Pages 120-133, January, 2008.
- N. Chawla, D. A. Cieslak, L.O. Hall and A, Joshi, Automatically countering imbalance and its empirical relationship to cost, *Data Mining and Knowledge Discovery*, V. 17, No. 2, pp. 225-252, Aug., 2008.
- P. Hore, L.O. Hall, D.B. Goldgof, Y. Gu, A.A. Maudsley and A. Darkazanli, A Scalable Framework For Segmenting Magnetic Resonance Images *Journal of Signal Processing Systems*, Volume 54, Issue 1 (2009), Page 183-203
- K. Kramer, L.O. Hall, D.B. Goldgof and A. Remsen, Fast Support Vector Machines for Continuous Data, *IEEE Transactions on Systems, Man and Cybernetics, Part B: Cybernetics*, V. 39, No. 4, pp. 989-1001, 2009.
- P. Hore, L.O. Hall, and D.B. Goldgof, A Scalable Framework For Cluster Ensembles, Pattern Recognition, 42 (2009), pp. 676-688.

- S. Fefilatyev, L. Chen, T.V. Ivanovskiy, Lawrence O. Hall and Dmitry B. Goldgof, H. Greenstein and C.R. Garrett, Complications in using automated methods to increase clinical trial accrual *Intl. J Biomedical Engineering and Technology*, Vol. 4, No. 2, 2010.
- L. Shoemaker, R. E. Banfield, L. O Hall, K. W. Bowyer, W. P. Kegelmeyer, Detecting and Ordering Salient Regions, Data Mining and Knowledge Discovery (DOI: 10.1007/s10618- 010- 0194-6), Published online 8/3/2010.
- L.O. Hall and D.B. Goldgof , Convergence of the Single-Pass and Online Fuzzy C-Means Algorithms,*Fuzzy Systems, IEEE Transactions on* , vol.19, no.4, pp.792-794, Aug. 2011
- T.C. Havens, J.C. Bezdek, C. Leckie, L.O. Hall, and M. Palaniswami. Fuzzy c-means algorithms for very large data. IEEE Trans. Fuzzy Systems, vol.20, no.6, pp.1130-1146, Dec. 2012, doi: 10.1109/TFUZZ.2012.2201485.
- Juana Canul-Reich, L.O. Hall, D.B. Goldgof, et al, Iterative Feature Perturbation as a Gene Selector for Microarray Data, Int. J. Patt. Recogn. Artif. Intell. 26, 2012.
- Kumar V, Gu, Y, Basu, S, Berglund, A, Eschrich, SA, Schabath, MB, Foster, K, Aerts, HJ, Dekker, A, Fenstermacher, D, Goldgof, DB, Hall, LO, Lambin, P, Balagurunathanm, Y, Gatenby, RA, Gillies, RJ. Radiomics: the process and the challenges, Magn Reson Imaging, 30(9), 1234-48, 2012.
- Daniel T. Elozory, Kurt A. Kramer, Baishali Chaudhury, Om P. Bonam, Dmitry B. Goldgof, Lawrence O. Hall, Peter R. Mouton, Automatic Section Thickness Determination using An Absolute Gradient Focus Function, Journal of Microscopy, 2012 Dec;248(3):245-59.
- Yuhua Gu, Virendra Kumar, Lawrence O. Hall, Dmitry B. Goldgof, Ching-Yen Li, René Korn, Claus Bendtsen, Emmanuel Rios Velazquez, Andre Dekker, Hugo Aerts, Philippe Lambin, Xiuli Li, Jie Tian, Robert A. Gatenby, Robert J. Gillies, Automated delineation of lung tumors from CT images using a single click ensemble segmentation approach, Pattern Recognition, Volume 46, Issue 3, March 2013, Pages 692-702, ISSN 0031-3203, 10.1016/j.patcog.2012.10.005. (http://www.sciencedirect.com/science/article/pii/S0031320312004384)
- Parker, J.; Hall, L., "Accelerating Fuzzy C Means using an Estimated Subsample Size," Fuzzy Systems, IEEE Transactions on , V. 22, N. 5, pp. 1229-1244, Oct. 2014, doi: 10.1109/TFUZZ.2013.2286993
- Y. Balagurunathan, Y. Gu, H. Wang, V. Kumar, O. Grove, S. Hawkins, J. Kim, D.B. Goldgof, L.O. Hall, R.A. Gatenby and R. J. Gillies, Reproducibility and Prognosis of Quantitative Features Extracted from CT Images, Translational Oncology, 2014 Feb 1;7(1):72-87.
- Mu Zhou, Lawrence Hall, Dmitry Goldgof, Robin Russo, Yoganand Balagurunathan, Robert Gillies, Robert Gatenby, Radiologically Defined Ecological Dynamics and Clinical Outcomes in Glioblastoma Multiforme: Preliminary Results, Translational Oncology, Volume 7, Issue 1, February 2014, Pages 5-13, ISSN 1936-5233, http://dx.doi.org/10.1593/tlo.13730. (http://www.sciencedirect.com/science/article/pii/S1936523314800028)
- Balagurunathan, Yoganand and Kumar, Virendra and Gu, Yuhua and Kim, Jongphil and Wang, Hua and Liu, Ying and Goldgof, Dmitry B. and Hall, Lawrence O. and Korn, Rene and Zhao, Binsheng and Schwartz, Lawrence H. and Basu, Satrajit and Eschrich, Steven and Gatenby, Robert A. and Gillies, Robert J., *Test–Retest Reproducibility Analysis of Lung CT Image Features*, J Digit Imaging (2014) 27:805–823.

- Hawkins, S.H.; Korecki, J.N.; Balagurunathan, Y.; Gu, Y.; Kumar, V.; Basu, S.; Hall, L.O.; Goldgof, D.B.; Gatenby, R.A.; Gillies, R.J., "Predicting Outcomes of Nonsmall Cell Lung Cancer Using CT Image Features", IEEE Access, vol.2, no., pp.1418,1426, 2014.
- Chaudhury B , Zhou M, Goldgof DB, Hall LO, Gatenby RA, Gillies RJ, Patel BK, Weinfurtner RJ, S. Drukteinis, JS, "Heterogeneity in intratumoral regions with rapid gadolinium washout correlates with ER status and nodal metastasis", Journal of Magnetic Resonance Imaging, 42(5), 2015, pp.1421-1430.
- Rajmadhan Ekambaram, Matthew Shreve, Sergiy Fefilatyev, Kurt Kramer, Lawrence O. Hall, Dmitry B. Goldgof, Rangachar Kasturi, "Active Cleaning of Label Noise", Pattern Recognition, Volume 51, March 2016, Pages 463-480.
- R. Paul, S. H. Hawkins, Y. Balagurunathan, M.B. Schabath, R.J. Gillies, L. O. Hall, and D.B. Goldgof, Deep Feature Transfer Learning in Combination with Traditional Features Predicts Survival Among Patients with Lung Adenocarcinoma, Tomography, Volume 2, Issue 4, pp. 388-395, Dec. 2016.
- Samuel Hawkins, Hua Wang, Ying Liu, Alberto Garcia, Olya Stringfield, Henry Krewer, Qian Li, Dmitry Cherezov, Robert A. Gatenby, Yoganand Balagurunathan, Dmitry Goldgof, Matthew B. Schabath, Lawrence Hall, Robert J. Gillies, Predicting Malignant Nodules from Screening CT Scans, Journal of Thoracic Oncology, Volume 11, Issue 12, December 2016, Pages 2120-2128, ISSN 1556-0864, http://dx.doi.org/10.1016/j.jtho.2016.07.002
- Zhou, M., Chaudhury, B., Hall, L. O., Goldgof, D. B., Gillies, R. J. and Gatenby, R. A. (2016), Identifying spatial imaging biomarkers of glioblastoma multiforme for survival group prediction. J. Magn. Reson. Imaging. doi:10.1002/jmri.25497
- Meng Fang, Jie Yin, Lawrence O. Hall, and Dacheng Tao, Active Multitask Learning With Trace Norm Regularization Based on Excess Risk, IEEE Transactions on Cybernetics, V. 47, N. 11 pp. 3906-3915., Nov. 2017.
- Hady Ahmady Phoulady, Dmitry Goldgof, Lawrence O. Hall, Marcia Gordon, David Morgan, and Peter R. Mouton, Unbiased Estimation of Cell Number Using the Automatic Optical Fractionator, Journal of Chemical Neuroanatomy, V. 80, Pages A1-A8, March 2017.
- M. Zhou, J. Scott, B. Chaudhury, L.O. Hall, D. Goldgof, K.W. Yeom, M. Iv, Y. Ou, J. Kalpathy-Cramer, S. Napel, R. Gillies, O. Gevaert, R. Gatenby, Radiomics in Brain Tumor: Image Assessment, Quantitative Feature Descriptors and Machine-learning Approaches, American Journal of Neuroradiology, Oct 2017, DOI: 10.3174/ajnr.A5391.
- R. Paul, S. Hawkins, M.B. Schabath, R. J. Gillies, L. O. Hall, D. B. Goldgof, "Predicting malignant nodules by fusing deep features with classical radiomics features," J. Med. Imag. 5(1) 011021 (21 March 2018)
- Cherezov D, Hawkins SH, Goldgof DB, Hall, L. O., et al. Delta radiomics features improve prediction for lung cancer incidence: A nested case–control analysis of the National Lung Screening Trial. Cancer Med. 2018;00:1–17. https://doi.org/10.1002/cam4.1852
- S. S. Al Ahmari, D. Cherezov, D. B. Goldgof, L. O. Hall, R. J. Gillies and M. B. Schabath, Delta Radiomics Improves Pulmonary Nodule Malignancy Prediction in Lung Cancer Screening, IEEE Access, Volume: 6, Issue:1, pp. 77796-77806, Dec. 2018.

- D Cherezov, D Goldgof, L Hall, R Gillies, M Schabath, H Müller, and A Depeursinge, Revealing Tumor Habitats from Texture Heterogeneity Analysis for Classification of Lung Cancer Malignancy and Aggressiveness, Scientific Reports, No. 1, pp. 9:4500, 2019.
- Paul R, Schabath M, Balagurunathan Y, Liu Y, Li Q, Gillies R, Hall LO, Goldgof DB. Explaining Deep Features Using Radiologist-Defined Semantic Features and Traditional Quantitative Features. Tomography. 2019 Mar;5(1):192-200. doi: 10.18383/j.tom.2018.00034. PubMed PMID: 30854457; PubMed Central PMCID: PMC6403047.
- Alahmari, S.S. and Goldgof, D.and Hall, L. and Phoulady, H. and Patel, R.H and Mouton, P. R, Automated cell counts on tissue sections by deep learning and unbiased stereology, Journal of chemical neuroanatomy, V. 96, pp. 94-101, 2019.
- Phoulady, H.A., Goldgof, D., Hall, L.O., Nash, K.N., Mouton, P.R. Automatic Stereology of Mean Nuclear Size of Neurons Using An Active Contour Framework. J Chem Neuroanatomy, V. 96, pp. 110-115, 2019.
- Phoulady, H. A. and Goldgof, D. and Hall, L.O. and Mouton, P.R., Automatic ground truth for deep learning stereology of immunostained neurons and microglia in mouse neocortex, Journal of chemical neuroanatomy, V. 98, pp. 1-7, 2019.
- Tunali I, Hall LO, Napel S, Cherezov D, Guvenis A, Gillies RJ, Schabath MB, Stability and reproducibility of computed tomography radiomic features extracted from peritumoral regions of lung cancer lesions, Med Phys. 2019 Nov;46(11):5075-5085. doi: 10.1002/mp.13808. Epub 2019 Sep 23.
- Rahul Paul, Matthew Schabath, Robert Gillies, Lawrence Hall, Dmitry Goldgof, Convolutional Neural Network ensembles for accurate lung nodule malignancy prediction 2 years in the future, Computers in Biology and Medicine, Volume 122, 2020.
- Paul R, Shafiq-Ul Hassan M, Moros EG, Gillies RJ, Hall LO, Goldgof DB. Deep Feature Stability Analysis Using CT Images of a Physical Phantom Across Scanner Manufacturers, Cartridges, Pixel Sizes, and Slice Thickness. Tomography. 2020; 6(2):250-260. doi:10.18383/j.tom.2020.00003
- Cherezov, D., Paul, R., Fetisov, N., Gillies, R. J., Schabath, M. B., Goldgof, D. B., & Hall, L. O. (2020). Lung Nodule Sizes Are Encoded When Scaling CT Image for CNN's. Tomography (Ann Arbor, Mich.), 6(2), 209–215. https://doi.org/10.18383/j.tom.2019.00024
- Rahul Paul and Matthew B. Schabath and Robert Gillies and Lawrence O. Hall and Dmitry B. Goldgof, Hybrid models for lung nodule malignancy prediction utilizing convolutional neural network ensembles and clinical data, V 7, No. 2, Journal of Medical Imaging, pp. 1 – 21, 2020.
- S. S. Alahmari, D. B. Goldgof, P. R. Mouton and L. O. Hall, "Challenges for the Repeatability of Deep Learning Models," in IEEE Access, vol. 8, pp. 211860-211868, 2020.
- Mu, W., Liang, Y., Hall, L.O., Tan, Y., Balagurunathan, Y., Wenham, R., Wu, N., Tian, J. and Gillies, R.J., 2020. 18F-FDG PET/CT Habitat Radiomics Predicts Outcome of Patients with Cervical Cancer Treated with Chemoradiotherapy. Radiology: Artificial Intelligence, 2(6), p.e190218.
- P Dave, S Alahmari, D Goldgof, L. O. Hall, H. Morera, P.R. Mouton, An Adaptive Digital Stain Separation Method for Deep Learning-based Automatic Cell Profile Counts, Journal of Neuroscience Methods, https://doi.org/10.1016/j.jneumeth.2021.109102, 2021.

- S Moreno, M Bonfante, E Zurek, D Cherezov, D Goldgof, L Hall, Matthew Schabath, A Radiogenomics Ensemble to Predict EGFR and KRAS Mutations in NSCLC Tomography 7 (2), 154-168, 2021.
- KB Ahmed, GM Goldgof, R Paul, DB Goldgof, LO Hall, Discovery of a generalization gap of convolutional neural networks on COVID-19 X-rays classification, IEEE Access , 72970-72979, 2021

Books and Edited Volumes:

Designing Fuzzy Expert Systems, Verlag TUV Rheinland, Germany, 1986. (With A. Kandel).

Proceedings of the 1994 First International Joint Conference of NAFIPS, IFIS, NASA, IEEE Press. 1994. (With J. Yen, R. Langari, H. Ying)

Jim Bezdek and Lawrence O. Hall (eds.), Proceedings of the 1998 Conference of the North American Fuzzy Information Processing Society, IEEE Press, Piscataway, NJ. 1998.

William Gruver, Michael H. Smith and Lawrence O. Hall (eds.), Proceedings of the Joint 9th IFSA World Congress and 20th NAFIPS International Conference, IEEE Press, Piscataway, New Jersey, July, 2001.

Chapters in Books:

- *Parallel Rule-Based Algorithms for Reasoning Systems*, Advances in Artificial Intelligence Research, Vol. 1, (Mark Fishman, Ed.), Jai Press, pp. 179-186, 1989.
- *Datapac: A Parallel Forward Reasoning System*, Advances in Artificial Intelligence Research, Vol. 2, (Mark Fishman and Frank Anger, Eds.), Jai Press, pp. 61-72, 1992. (With O. Kim).
- *Fess: A Re-usable Fuzzy Expert System*, Expert Systems in the Fuzzy Age (A. Kandel, Ed.), pp. 181-194, Boca Raton, Fl., CRC press, 1991. (With A. Kandel)
- *The Evolution from Expert Systems to Fuzzy Expert Systems*, Expert Systems in the Fuzzy Age (A. Kandel, Ed.), pp. 3-22, CRC press, Boca Raton, Fl., 1991. (With A. Kandel)
- *Injecting Symbol Processing into a Connectionist Model*, Neural and Intelligent Systems Integration, Wiley Series in Sixth Generation Computer Technologies (Branko Soucek, Ed.), pp. 383-406, John Wiley and Sons, N.Y., 1991. (With S. Romaniuk).
- *Performance Issues of a Hybrid Symbolic, Connectionist Learning Algorithm*, Hybrid Systems, (A. Kandel, Ed.), CRC press, 1992. (With S. Romaniuk)
- The Validation of Fuzzy Knowledge-based Systems, in Fuzzy Logic for the Management of Uncertainty (ed. J. Kacprzyk and L. Zadeh), pp. 589-604, John Wiley, N.Y., N.Y., 1992. (With A. Cheng).
- *Learning Fuzzy Control Rules from Examples*, in Fuzzy Control Systems (ed. Kandel, A. and Langholz, G.), 1993, pp. 375-396. (With S. Romaniuk)
- The Evolution of Expert Systems, In Artificial Intelligence Theory and Applications (ed. Mohammad Jamshidi), Prentice-Hall (1994), (with A. Kandel).

- Learning Fuzzy Membership Functions in a Function-Based Object Recognition System, Fuzzy Logic in Artificial Intelligence, In Lecture Notes in Artificial Intelligence (847), Anca Ralescu (Ed.), Springer Verlag, N.Y., pp. 77-96, 1994.
- Stark, L., Bowyer, K.W., Woods, K., Hall, L., and Cook, D. Application of learning techniques in a function-based recognition system, In Symbolic Visual Learning K. Ikeuchi and M Veloso, editors, Oxford University Press, 1995.
- Hall, L.O., Majchrzak, T. and Silbiger, M. Obtaining fuzzy classification rules in segmentation, Fuzzy Logic and Soft Computing (ed. B. Bouchon-Meunier, R.R. Yager, L.A. Zadeh), World Scientific, River Edge, N.J. pp. 84-92, 1995.
- Clark, M.C., Hall, L.O., Goldgof, D.B., Silbiger, M.S., Using Fuzzy Information in Knowledge Guided Segmentation of Brain Tumors, Lecture Notes in Artificial Intelligence (1188) (ed. T.P. Martin and A.L. Ralescu), pp.167-181, 1997.
- Bezdek, J. C., Hall, L. O., Clark, M., Goldgof, D. and Clarke, L. P. Segmenting medical images with fuzzy models: an update, in Fuzzy Information Engineering, ed. Dubois, D., Prade, H. and Yager, R., Wiley, NY, 69-92, 1997.
- I.B. Ozyurt and L.O. Hall, Fuzzy Genetic Algorithm Based Approach to Machine Learning, Uncertainty Analysis in Engineering, ed. Billal Ayyub, Kluwer Academic, 1997.
- M.C. Clark, L.O. Hall, D.B. Goldgof, R. Velthuizen, R. Murtagh, and M.S. Silbiger, Unsupervised Brain Tumor Segmentation using Knowledge-Based Fuzzy Techniques, Fuzzy and Neuro-Fuzzy Systems in Medicine, Ed. H-N Teodorescu, A. Kandel, L.C. Jain, pp. 137-169, 1998.
- L. O. Hall, N. Chawla, K. W. Bowyer and W. P. Kegelmeyer, Learning Rules from Distributed Data, in Large-scale Parallel Data Mining,, V. 1759 LNAI, Eds. (M. Zaki and H. Ho), Springer-Verlag, 2000.
- Clark, M.C., Hall, L.O., Goldgof, D.B., Velthuizen, R., Murtagh, F.R., and Silbiger, M.S., "Automatic tumor segmentation using knowledge-based techniques", *IEEE Transactions on Medical Imaging*, V. 17, No. 2, pp. 187-201, 1998. was selected by International Medical Informatics Association for 2000 IMIA Yearbook containing "the best of medical informatics".
- L.O. Hall and P. Kanade, Scalable Swarm Based Fuzzy Clustering, Proceedings Volume of the 29th Annual Conference of the GfKl, Springer-Verlag, 2005.
- L.O. Hall and D.B. Goldgof and J. Canul-Reich and P. Hore, W. Cheng and L. Shoemaker, Scaling Fuzzy Models, in Scalable Fuzzy Algorithms for Data Management and Analysis, A. Laurent and M-J. Lesot (Editors), IGI Global Press., 2010.
- L. O. Hall, Objective function-based clustering. Wiley Int. Rev. Data Min. and Knowl. Disc. 2, 4 (July 2012), 326-339. DOI=10.1002/widm.1059 http://dx.doi.org/10.1002/widm.1059

Refereed Conferences:

- *Possibilistic Image Analysis*, the Third Annual Scandinavian Conference on Image Analysis, Copenhagen, Denmark, pp. 42-45, 1983. (With A. Kandel)

- *Algorithms for Fuzzy Classification*, the Fourteenth annual Symposium on Multiple Valued Logic, Winnepeg, Canada, pp. 142-147, 1984.(With A. Kandel)
- *On Fuzzy Classification*, Seventh International Conference on Pattern Recognition, Montreal, Canada, pp. 1323-1325, 1984. (With A. Kandel).
- *On the Use of Soft Expert Systems in Pattern Recognition*, the Fourth Annual Scandinavian Conference on Image Analysis, Trondheim, Norway, pp. 805-812, 1985. (With A. Kandel).
- *The Construction of Membership Functions of Fuzzy Sets for Use in Expert Systems*, First IFSA Congress, Palma De Mallorca, Spain, Vol.3, 1985. (With S. Szabo and A. Kandel)
- *Fess: A Fuzzy Relational Expert System*, North American Fuzzy Information Processing Society Conference, Ga. State Univ., Atlanta, Ga., October 1985. (With A. Kandel)
- *Relational Knowledge Acquisition*, The Second Conference on Artificial Intelligence Applications, Miami Beach, Fl. pp.509-513, Dec. 1985. (With W. Bandler).
- *A Fuzzy Expert System Based on Relations*, 1986 International Symposium on Multiple-Valued Logic, Blacksburg, Va., pp. 252-256, May 1986. (With A. Kandel)
- *Towards Authenticating a Multi-purpose Fuzzy Expert System*, NAFIPS'86 Conference, New Orleans, La., pp. 160-168, June 1986.
- *Substitutional Pattern Matching of Clauses in a Fuzzy Expert System*, International Symposium on Methodologies for Intelligent Systems, Knoxville, Tennessee, Oct. 1986.
- *Languages for Expert System Building: A Comparison*, ACM SIGSMALL/PC Symposium on Small Systems, San Francisco, Ca., Dec. 1986. (With A. Kandel).
- *New Concepts for Expert Systems Capable of Intelligence in an Imprecise Environment*, Intelligent Autonomous Systems, Amsterdam, Netherlands, Dec. 1986. (With A. Kandel and W. Bandler).
- *Designing Expert Systems for Imprecise Environments*, Hawaii International Conference On System Sciences, Kailua-Kona, Hawaii, 1987. (With A. Kandel and W. Bandler).
- *On the Choice of Ply Operators for Modus Ponens Generation in Fuzzy Intelligent Systems*, North American Fuzzy Information Processing Society 1987 Workshop, Purdue Univ., West Lafayette, Indiana.
- *On the Fuzzy Logic Modes of Inference: Confirmation and Denial*, International Fuzzy Systems Association Symposium, Tokyo, Japan, 1987.
- *Parallel Rule-based Algorithms for Reasoning Systems*, AAAI Spring Symposium Series on Parallel Models of Intelligence, Stanford, Ca. March 1988.
- *Parallel Rule-Based Algorithms for Reasoning Systems*, 1^{st} Florida Artificial Intelligence Research Symposium, Orlando, Fl. pp. 111-113, May 1988.
- *Parallelism Applied to Fuzzy Rule-Based Reasoning*, North American Fuzzy Information Processing Society Conference, San Francisco, June, 1988.

- *A Comparison of Point-Valued and Interval-valued Reasoning under Uncertainty*, North American Fuzzy Information Processing Society Conference, San Francisco, June, 1988. (With P. Cheng).
- *A System for Temporal Plan Generation*, SPIE Applications of Artificial Intelligence, Orlando, Fl., March 1988. (With B. Tirumala).
- *Datapac: A Parallel Reasoning Forward Chained System*, Proceedings of the 2^{nd} annual Florida A.I. Research Symposium, Orlando. April 1989. (With O. Kim).
- *Parallel Connectionist Expert Systems*, IASTED Conference on Expert Systems Theory and Applications, Zurich, Switzerland, June 1989. (With S. Romaniuk).
- *Fuzznet: Towards a Fuzzy Connectionist Expert System Development Tool*, International Joint Conference On Neural Networks, pp. II. 483-487, Washington, D.C., Jan. 1990. (With S. Romaniuk).
- *Knowledge Engineering a Parallel Forward Chaining Inferencing System*, Proceedings of the 3^{rd} annual Florida A.I. Research Symposium, Cocoa Beach. April 1990. (With C.P. Industrious and O. Kim).
- Expert System Validation as it Applies to Expert Systems Utilizing a Frame-based Knowledge Representation, Proceedings of the 2^{nd} annual Florida A.I. Research Symposium, Orlando. April 1990. (With A. Cheng).
- *Parallelism in Backward-chained Expert Systems: Experimental Results*, Applications of Artificial Intelligence V, Orlando, Fl, 1990.
- *Decision Making on Creditworthiness Using a Fuzzy Connectionist Expert System Development Tool*, International Neural Network Conference - 90, Paris, France, July, 1990, pp. 449-452. (With S. Romaniuk).
- *Uncertainty Management in a Connectionist Expert System*, International Conference on Information Processing and Management of Uncertainty, Paris, France, July 1990, pp. 12-14. (With S. Romaniuk)
- A Hybrid, Connectionist, Symbolic Learning System, AAAI-90, Boston, Ma., pp. 783-788, August. (With S. Romaniuk).
- Evaluation of some Inductive Algorithms for Automatic Knowledge Acquisition, Third Florida Conference on Computer Integrated Eng. and Manufacturing, Tampa, Fl., pp. 51-57, Nov. 1990. (With S. Romaniuk, R. Perez, et.al.).
- An investigation of methods of combining functional evidence for 3-D object recognition, *SPIE #1381: Intelligent Robots and Computer Vision*, Boston, Massachusetts (November 1990). (With Stark, L., and Bowyer, K.W.).
- An Expert System for a Distributed Memory Multiprocessor Architecture, 4^{th} Florida AI Research Symposium 1991, April, Cocoa Beach, pp. 121-124. (With Gary Whitehead)
- A Study of Machine Learning Approaches for some Classification Knowledge Bases, 4^{th} Florida AI Research Symposium 1991, April, Cocoa Beach, pp. 125-129. (with S. Romaniuk and H. Lee)
- Learning on Fuzzy Data with a Backpropagation Scheme, North American Information Processing Society 1991 workshop, Missouri, CO. pp. 329-332.

- Learning with Fuzzy Examples, The Fourth International Fuzzy Systems Association Symposium, Brussels, Belgium, pp. 50-53, 1991, (with S. Romaniuk and H. Lee).
- Transformation Ordering Iterative Deepening A*, Proceedings of the Sixth International Symposium on Methodologies for Intelligent Systems (Poster Session), Charlote, N.C., October 1991, pp. 65-72. (with D. Cook and W. Thomas).
- The Use of Connectionist Networks to Recognize Airplanes from Radar Returns, Artificial Neural Networks in Engineering '91, St. Louis, Mo., pp. 921-926, Nov. 1991. (with S. Romaniuk, J. Leonard, and R. Mitchell)
- Fuzzy Quantifiers and Quantifying Operators in a Connectionist Expert System Development Tool, International Joint Conference on Neural Networks, Singapore, November, pp. 134-139, Nov. 1991. (With S. Romaniuk)
- *Inductive Learning For Expert Systems In Manufacturing*, 25^{th} Hawaii International Conference on Systems Sciences, Jan. 1992. (with R. A. Perez, S. Romaniuk and J. T. Lilkendey)
- *Dynamic Neural Networks with the use of Divide and Conquer*, International Joint Conference on Neural Networks, Baltimore, Md., June 1992, pp. I-658 - I-663. (with S. Romaniuk)
- *Fuzzy concept Formation*, Applications of Artificial Intelligence X: Knowledge-Based Systems (SPIE), V. 1707, pp. 160-167, Orlando, April 1992 (With J. Powell).
- *Learning Fuzzy Information in a Hybrid Connectionist, Symbolic Model*, IEEE International Conference on Fuzzy Systems 1992, pp. 309-312., San Diego, Ca. (with S. Romaniuk)
- *A Partially Supervised Fuzzy c-Means Algorithm for Segmentation of MR Images* SPIE conf. on the Science of Neural Networks Proc., Apr. '92, Orlando, Fl. (with Bensaid AM, Bezdek JC, Velthuizen RP and Clarke LP)
- *A Connectionist Architecture for Production Rules with Variables*, Iizuka'92, 2^{nd} International Conference on Fuzzy Logic and Neural Networks, July. (with S.G. Romaniuk and K. Sanou).
- *Towards Automatic Classification and Tissue Labeling of MR Brain Images*, International Association for Pattern Recognition Workshop on Structural and Syntactic Pattern Recognition, Bern, Switzerland. In Advances in Structural and Syntactic Pattern Recognition, edited by H. Bunke, pp. 520-529. (with C. Li and D. Goldgof)
- *A Hybrid Symbolic, Connectionist Production System*, Tools for Artificial Intelligence, 1992, McLean, Va. (With K. Sanou, and S.G. Romaniuk).
- *A Production System based on a Connectionist Architecture*, International Joint Conference on Neural Networks, Nov. 1992, Beijing, China. (With K. Sanou, and S.G. Romaniuk).
- *Methods for combination of evidence in function-based 3-D object recognition*, Proceedings Neural and Stochastic Methods in Image and Signal Processing, SPIE, San Diego, CA., 1992. (with L. Stark and K. Bowyer).
- *A Connectionist Implementation of a Production System on a Hypercube Multiprocessor*, Korea/Japan Joint Conference on Expert Systems, pp. 13-19 (1993). (With K. Sanou, and S.G. Romaniuk).

- *Unsupervised fuzzy segmentation of 3D magnetic resonance brain images*, Biomedical Image Processing and Biomedical Visualization, San Jose, Ca. (1993) (with R. Velthuizen).
- *Knowledge-Based classification and tissue labeling of MR images of human brain, Biomedical Image Processing and Biomedical Visualization*, SPIE, San Jose, Ca. (1993)(with C. Li and D. Goldgof).
- *A Connectionist Production System with Approximate Matching Function*, FUZZ-IEEE, (1993), pp. 415-421, (With K. Sanou and S.G. Romaniuk).
- *Learning Combination of Evidence Functions in Object Recognition*, AAAI Fall Symposium on Machine Learning in Computer Vision: What, Why, and How?, (1993), pp. 139-143. (With D. Cook, L. Stark, K. Bowyer, and K. Woods)
- *An Initialization Scheme for Clustering of MR Images of the Brain*, (5th international conference of the IEEE Engineering in Medicine and Biology Society, San Diego CA, October 28-31, 1993. pp 164-165. (With R. Velthuizen, L.P. Clarke, and R.R. Yager).
- *Parallel Clips for Current Hypercube Architectures*, FLAIRS'93, Ft. Lauderdale, Fl. (with L. Prasad, E. Jackson).
- *A Connectionist Implementation of a Production System on the Connection machine*, FLAIRS'93 (with K. Sanou and S. Romaniuk).
- *Learning Fuzzy Rules an Instance Based Approach*, 5^{th} International Fuzzy Systems Association World Congress, 1993, pp. 171-174, Seoul, Korea. (With S. Romaniuk).
- *Fuzzy Set Learning in Functional Object Recognition*, NAFIPS'93, Allentown, PA., pp. 124-128. (With K. Woods, L. Stark, D. Cook, K. Bowyer).
- *Improved Parallel CLIPS for Hypercubes*, 2^{nd} World Congress on Expert Systems, (1994), Lisbon, Portugal.
- Fuzzy Cluster Validity in Magnetic Resonance Images, SPIE Medical Imaging 1994, V. 2167 (ed. Loew), Image Processing, pp. 454-464, Newport Beach, CA. (with J. Bezdek, A. Bensaid, L.P. Clarke).
- *Obtaining Fuzzy Classification Rules in Segmentation*, International Conference on Information Processing and Management of Uncertainty, Paris, Fr., 1994, pp. 619-624, (with T. Majchrzak and M. Silbiger).
- *Genetic Algorithm Guided Clustering*, International Conference on Evolutionary Computing, 1994, pp. 34-39 (with A. Bensaid, J. Bezdek, S. Boggavarpu).
- *Knowledge Based (Re-)Clustering*, 12th International Conference on Pattern Recognition, Israel, pp. 245-250, Oct. 1994 (with C. Li, D. Goldgof, M. Clark).
- L.O. Hall, J.C. Bezdek, S. Boggavarapu and A. Bensaid, *Genetic Fuzzy Clustering*, NAFIPS'94, San Antonio, TX, Dec. pp. 411-415.
- *PCLIPS: Parallel CLIPS*, Third Conference on Clips (CLIPS'94), NASA-JSC, Houston, TX. Sept. 1994. (with Bonnie Bennett).

- *Tumor Volume Measurements using Supervised and Semi-Supervised MRI Segmentation Methods*, ANNIE'94 (C. Dagli, B. Fernandez, et.al. Eds.), pp. 629-637). (with M. Vaidyanathan, R.P. Velthuizen, P. Venugopal, and L.P. Clarke).
- *Fast Fuzzy Clustering with Application to Fuzzy Rule Generation*, FUZZ-IEEE 95, Tokyo, Japan, 1995, pp. 2289-2295. (with T.W. Cheng, and D.B. Goldgof)
- *Fuzzy rule generation with an instance-based learner*, IFSA 95, Brazil, pp. 29-32, Vol. 1. (with T. Majchrzak)
- *The use of Fuzzy Rules in Classification of Normal Human Brain Tissues*, ISUMA-NAFIPS'95, pp. 157-162. (with Anand Namasivayam).
- *Scaling Genetically Guided Fuzzy Clustering*, ISUMA-NAFIPS'95, pp. 328-332. (with Burak Ozyurt).
- *Using fuzzy information in knowledge guided segmentation of brain tumors*, IJCAI workshop on Fuzzy Logic in AI, August, 1995, Montreal, pp. 211-220. (with M. Clark, D. Goldgof).
- L.O. Hall, *Learned Fuzzy rules vs. Decision Trees in Classifying Microcalcifications in Mammograms*, SPIE conference on Fuzzy Logic Applications, Orl. April 1996.
- A. Namasivayam and L.O. Hall, *Integrating fuzzy rules into the fast, robust segmentation of Magnetic Resonance Images*, NAFIPS'96, Berkeley, CA, 1996.
- M. Zhang, L.O. Hall and D. Goldgof, *Knowledge-Based Classification of CZCS Images and Monitoring of Red Tides off the West Florida Shelf*, International Conference on Pattern Recognition, pp. B-452- B-456, 1996.
- L.O. Hall and P. Lande, Generating Fuzzy Rules from Data, FUZZ-IEEE '96, pp. 1757-1762, 1996.
- L.O. Hall and P. Lande, Generating Fuzzy Rules from Decision Trees, IFSA'97, pp. 418-423.
- J. Lei and L. O. Hall, Speaker Recognition with a self-configuring neural network, ICNN'97, pp. 2351-2354.
- L.O. Hall and M.A. Pokorny, Averaged Reward Reinforcement Learning Applied to Fuzzy Rule Tuning, FUZZY'97.
- L.O. Hall and M.A. Pokorny, Reinforcement Tuning of Fuzzy Rules, NAFIPS'97, pp. 124-129, Syracuse, N.Y.
- M. Zhang, L. O. Hall, D. B. Goldgof and F. E. Muller-Karger, "Fuzzy Analysis of Satellite Images to Find Phytoplankton Blooms", *IEEE International Conference on Systems Man and Cybernetics*, Orlando, Florida, October, pp. 1430-1435, 1997.
- A. Namasivayam and L.O. Hall, "Using Adaptive Fuzzy Rules for Image Segmentation", Fuzz-IEEE'98 Conference on Fuzzy Systems, 1560-1565, May, 1998.
- S. Bhanja, L.M. Fletcher-Heath, L.O. Hall, D.B. Goldgof, J.P. Krischer, A Qualitative Expert System for Clinical Trial Assignment, FLAIRS'98, pp. 84-88, 1998.
- L.O. Hall, N. Chawla, K.W. Bowyer, Decision Tree Learning on Very Large Data Sets, IEEE Conference on Systems, Man and Cybernetics, Oct. San Diego, CA., pp. 2579-2584, 1998.

- L.O. Hall, B. Ozyurt, and J.C. Bezdek, The case for genetic algorithms in fuzzy clutering, Proc. of IPMU'98, pp. 288-295, 1998.
- L. O. Hall, N. Chawla, K. W. Bowyer and W. P. Kegelmeyer, Learning Rules from Distributed Data,Workshop on Large-Scale Parallel KDD Systems, KDD'99, 1999.
- D. E. Anderson and L.O. Hall, Mr. FIS: Mamdani Rules Fuzzy Inference System, IEEE SMC'99 conference, V-238-243, 1999.
- S.E. Crane and L. O. Hall, Learning to Identify Fuzzy Regions in Magnetic Resonance Images, NAFIPS'99, N.Y., pp.352-356, 1999.
- Michael R. Berthold and Lawrence O. Hall, Visualizing Fuzzy Points in Parallel Coordinates, NAFIPS 2000, Atlanta.
- L. O. Hall, K. W. Bowyer, W. P. Kegelmeyer, T. E. Moore, and C. Chao. Distributed Learning on Very Large Data Sets, *ACM SIGKDD Workshop on Distributed and Parallel Knowledge Discovery*, Boston, Massachusetts, July 2000.
- W. Yao, L.O. Hall, D.B. Goldgof, and F. Muller-Karger, Finding *Green River* in SeaWiFS Satellite Images, International Conference on Pattern Recognition, v. 2, pp. 307-310, Barcelona, 2000.
- N. Chawla, K.W. Bowyer, L.O. Hall, and WP Kegelmeyer, SMOTE: A Synthetic Minority Oversampling Technique, Knowledge Based Computer Systems, India, 2000.
- L.O. Hall, Chaining in Fuzzy Rule-Based Systems, Proceedings of the Ninth International Conference on Fuzzy Systems, 2000, pp. 906-910.
- Bowyer, K.W., Chawla, N.V., Moore, Jr., T.E., Hall, L.O. and Kegelmeyer, W.P., A Parallel Decision Tree Builder for Mining Very Large Visualization DataSets, IEEE Systems, Man, and Cybernetics Conference, 2000, pp. 1888-1893.
- M. Zhang, L. O. Hall and D. B. Goldgof, *Knowledge Extraction and Refinement from Multi-feature Images through (Re-)Clustering*, in Proceedings of ICIG'2000, Tianjin, China, August 16-18, 2000, page 459-462.
- S. Eschrich, J. Ke, L. Hall, D. Goldgof, "Fast Fuzzy Clustering of Infrared Images", *20th NAFIPS International Conference*, Vancouver, Canada July 2001, pp. 1145-1150.
- T. Perroud, K. Sobottka, H. Bunke and L.O. Hall, Text Extraction from Color Documents-Clustering Approaches in Three and Four Dimensions, Sixth International Conference on Document Analysis and Recognition, pp. 937-941, 2001.
- N. Chawla, T.E. Moore, Jr., K.W. Bowyer, L.O. Hall, C. Springer, and W.P. Kegelmeyer, Bagging Is A Small-Data-Set Phenomenon, IEEE Conf. on Computer Vision and Pattern Recognition, Hawaii, Dec., 2001.
- N. Chawla, T.E. Moore, Jr., K.W. Bowyer, L.O. Hall, C. Springer, and W.P. Kegelmeyer, Bagging-Like Effects for Decision Trees and Neural Nets in Protein Secondary Structure Prediction, BIOKDD01: Workshop on DataMining in Bioinformatics at KDD01, pp. 50-59, 2001.
- N. Chawla, S. Eschrich, and LO Hall, Creating Ensembles of Classifiers, IEEE Int. Conf on Data Mining, Nov., pp. 580-581, 2001.

- Yong Zhang, Lawrence O. Hall, Dmitry B. Goldgof and Sudeep Sarkar, A Constrained Genetic Approach for Reconstructing Young's Modulus of Elastic Objects from Boundary Displacement Measurements, Congress on Evolutionary Computation, WCCI 2002, pp. 1003-1008, 2002.
- Steven Eschrich , Nitesh V. Chawla , Lawrence O. Hall, Generalization Methods in Bioinformatics, BIOKDD02 Workshop at KDD'02, Edomonton, Ca., 2002.
- G. Keswani and L.O. Hall, Text Classification with Enhanced Semi-Supervised Fuzzy Clustering, Congress on Fuzzy Systems, WCCI 2002, 2002.
- Savvas Nikiforou, Eugene Fink, Lawrence O. Hall, Dmitry B. Goldgof, and Jeffry P. Krischer, Knowledge Acquisition for Clinical-Trial Selection, IEEE International Conference on Systems, Man and Cybernetics, pp. 66-71, October 2002.
- Princeton K. Kokku, Lawrence O. Hall, Dmitry B. Goldgof, Eugene Fink, and Jeffry P. Krischer, A Cost-effective Agent for Clinical Trial Assignment, IEEE International Conference on Systems, Man and Cybernetics, pp. 60-65, October 2002.
- L.O. Hall, R. Collins, K.W. Bowyer, and R. Banfield, Error-Based Pruning of Decision Trees Grown on Very Large Data Sets Can Work!, International Conference on Tools for Artificial Intelligence, pp. 233-238, November 2002.
- N. V. Chawla, L. O. Hall, K.W. Bowyer, T. E. Moore, Jr., and W. P. Kegelmeyer, Distributed Pasting of Small Votes, Multiple Classifier Systems Conference, Caligari, Italy, pp. 52-61, 2002.
- Runkler, T. A., Bezdek, J. C. and Hall, L. O. (2002). Clustering very large data sets: the complexity of the fuzzy c-means algorithm, Proc. EUNITE 2002, ed. K. Lieven, publ. By Elite Fndn, Aachen, Germany, ISBN 3-89653-919-1, 420-425.
- L.O. Hall, Xiaomei Liu, K.W. Bowyer, and Robert Banfield, An Analysis of Neural Network Versus Decision Tree Performance on a Bio-Informatics Problem, Workshop on Information Technology, Rabat, Morocco, 2003.
- S. Eschrich and L.O. Hall, Learning from Partitions of Data: Reducing the Variance, FUZZ-IEEE, St. Louis MO., 2003.
- P.M. Kanade and L.O. Hall, Fuzzy Ants as a Clustering Concept, 22nd international conference of the North American fuzzy information processing society NAFIPS, p. 227-232, 2003.
- R.E. Banfield, L.O. Hall, K.W. Bowyer, W. P. Kegelmeyer, A New Ensemble Diversity Measure Applied to Thinning Ensembles, Multiple Classifier Systems Conference, pp. 306 - 316, Surrey, UK, June, 2003.
- Lawrence O. Hall, Xiaomei Liu, Kevin W. Bowyer, and Robert Banfield, Why are Neural Networks Sometimes Much More Accurate than Decision Trees: An Analysis on a Bio-Informatics Problem, IEEE International Conf. on Systems, Man and Cybernetics, Oct. 2003, pp. 2851-2856.
- E. Fink, L. O. Hall, D. B. Goldgof, B. Goswami, M. Boonstra, J. P. Krischer, Experiments on the Automated Selection of Patients for Clinical Trials, IEEE International Conf. on Systems, Man and Cybernetics, pp. 4541-4545, Oct. 2003.

- Tong Luo, Kurt Kramer, Dmitry Goldgof, L.O. Hall, Scott Samson, Andrew Remsen, Thomas Hopkins, Learning to Recognize Plankton, IEEE International Conf. on Systems, Man and Cybernetics, pp. 888-893, Oct. 2003.
- Lawrence O. Hall, Kevin W. Bowyer, Robert E. Banfield, Divya Bhadoria, W. Philip Kegelmeyer and Steven Eschrich, Comparing Pure Parallel Ensemble Creation Techniques Against Bagging , The Third IEEE International Conference on Data Mining, Melbourne, Florida, pp. 533-536, November, 2003.
- N.V. Chawla, A. Lazarevic, L.O. Hall, and K.W. Bowyer, SMOTEBoost: Improving Prediction of the Minority Class in Boosting, 7th European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD), pp. 107 to 119, Dubrovnik, Croatia, 2003.
- Robert E. Banfield, Lawrence O. Hall, Kevin W. Bowyer, Divya Bhadoria, W. Philip Kegelmeyer and Steven Eschrich, A comparison of Ensemble Creation Techniques, Fifth international workshop on multiple classifier systems, Caligari Italy, June, pp. 223-232, 2004.
- P. Hore and L. O. Hall, Distributed Clustering for Scaling Classic Algorithms, FUZZ-IEEE, 2004.
- Parag M. Kanade and Lawrence O. Hall, Fuzzy ants clustering with centroids, FUZZ-IEEE'04, 2004.
- L.O. Hall, Divya Bhadoria, Kevin W. Bowyer, Learning a Model from Spatially Disjoint Data, 2004 IEEE International Conference on Systems, Man and Cybernetics, Hague, Netherlands.
- X. Liu, K.W. Bowyer, and L.O. Hall, Decision Trees Work Better Than Feed-Forward Back-Propagation Neural Nets for A Specific Class of Problems, 2004 IEEE International Conference on Systems, Man and Cybernetics, Hague, Netherlands.
- Bhavesh D. Goswami, Lawrence O. Hall, Dmitry B. Goldgof, Eugene Fink, Jeffrey P. Krischer, Using Probabilistic Methods to Optimize Data Entry in Accrual of Patients to Clinical Trials, 17th IEEE Symposium on Computer-Based Medical Systems, pp. 434-438, 2004.
- Tong Luo, Kurt Kramer, Dmitry B. Goldgof, Lawrence O. Hall, Scott Samson, Andrew Remsen, Thomas Hopkins, Active Learning to Recognize Multiple Types of Plankton, International Conference on Pattern Recognition, Cambridge, UK, 2004.
- L.O. Hall and P.M. Kanade, Swarm Based Fuzzy Clustering with Partition Validity, FUZZ-IEEE, May, pp. 991-995, 2005.
- Robert E. Banfield, Lawrence O. Hall, Kevin W. Bowyer, W. Philip Kegelmeyer, Ensembles of Classifiers from Spatially Disjoint Data, The Sixth International Conference on Multiple Classifier Systems, Monterey, CA, pp. 196-205, June 2005.
- Lawrence O. Hall and Ajay Joshi, Building Accurate Classifiers from Imbalanced Data Sets, IMACS'05, Paris, Fr., July 2005.
- N.V. Chawla, L.O. Hall and A. Joshi, Wrapper-based Computation and Evaluation of Sampling Methods for Imbalanced Datasets, Workshop on Utility-Based Data Mining, KDD'05, Chicago, IL, August 2005.
- Y. Gu, L. Hall, D. Goldgof, P. Kanade and F. Murtagh, Sequence Tolerant Segmentation System of Brain MRI, IEEE International Conference on Systems, Man and Cybernetics, pp. 2936-2943, Oct, 2005.

- L. Hall, T. Luo, D. Goldgof, A. Remsen, "Bit Reduction Support Vector Machine", *IEEE International Conference on Data Mining*, pp. 733-736, Houston, Texas, November 2005.
- Y. Gu and L.O. Hall, Kernel Based Fuzzy Ant Clustering with Partition validity, IEEE International Conference on Fuzzy Systems, pp. 263-267, Vancouver, Ca., July 2006.
- Shibendra Pobi and L.O. Hall, Predicting Juvenile Diabetes from Clinical Test Results, International Joint Conference on Neural Networks, pp. 4161-4167, Vancouver, Ca., July 2006.
- D.J. Garcia, K.K. Kramer, L.O. Hall and D.B. Goldgof, Feature Selection Algorithm from Random Subsets, ECML/PKDD Worshop on Distributed Data Mining, Berlin Germany, Sept. 2006.
- P. Hore, L.O. Hall, and D.B. Goldgof, A Cluster Ensemble Framework for Large Data sets, IEEE International Conference on Systems, Man and Cybernetics, Taipei, Taiwan, Oct. 2006.
- L. Shoemaker, R. E. Banfield, L.O. Hall, K.W. Bowyer, and L.O. Hall, Learning to Predict Salient Regions from Disjoint and Skewed Training Sets, International Conference on Tools for Artificial Intelligence, Washington, D.C. 2006.
- S. Fefilatyev, V. Smarodzinava, L.O. Hall, D.B. Goldgof, Horizon Detection Using Machine Learning Techniques, International Conference on Machine Learning Applications, Orlando, Fl. 2006.
- L. Chen, D.B. Goldgof, L.O. Hall and S. Eschrich, Noise-based Feature Perturbation as a Selection Method for Microarray Data, ISBRA 2007, Atlanta, May 2007.
- Lawrence O. Hall, Robert E. Banfield, Kevin W. Bowyer, and W. Philip Kegelmeyer, Boosting Lite - Handling Larger Datasets and Slower Base Classifiers, Multiple Classifier Systems Conference, Prague, 2007.
- Prodip Hore, Lawrence O. Hall and Dmitry B. Goldgof, Creating Streaming Iterative Soft Clustering Algorithms, NAFIPS 07, San Diego, 2007.
- Juana Canul-Reich, Larry Shoemaker and Lawrence O. Hall, Ensembles of Fuzzy Classifiers, IEEE International Conference on Fuzzy Systems, London, 2007.
- Prodip Hore, Lawrence O. Hall, and Dmitry B. Goldgof, Single Pass Fuzzy C Means, IEEE International Conference on Fuzzy Systems, London, 2007.
- Sergiy Fefilatyev, Tim V. Ivanovskiy, Lawrence O. Hall, Dmitry B. Goldgof, Shibendra Pobi, Chris R. Garrett, Amit P. Pathak, Halina Greenstien, Clinical Deployment of a Medical Expert System to Increase Accruals for Clinical Trials, IEEE International Conference on Systems, Man and Cybernetics, Oct. 2007.
- Prodip Hore, Lawrence O. Hall, and Dmitry B. Goldgof, A Fuzzy C Means Variant For Clustering Evolving Data Streams, IEEE International Conference on Systems, Man and Cybernetics, Montreal, Oct. 2007.
- P. Hore, L.0. Hall, D. Goldgof and W. Cheng, Online Fuzzy C Means, NAFIPS, May, 2008.
- J. Canul-Reich, L.O. Hall, D.B. Goldgof, Feature Selection for Microarray Data by AUC Analysis, IEEE International Conference on SMC, 2008.

- J.N. Korecki, R.E. Banfield, L.O. Hall, K.W. Bowyer, W.P. Kegelmeyer, Semi-supervised learning on large complex simulations, International Conference on Pattern Recognition, Dec. 2008.
- L. Shoemaker, R.E. Banfield, L.O. Hall, K.W. Bowyer, W.P. Kegelmeyer, Detecting and Ordering Salient Regions for Efficient Browsing, International Conference on Pattern Recognition, Dec. 2008.
- Y Gu, L.O. Hall, and D.B. Goldgof, Ant Clustering Using Ensembles of Partitions, Multiple Classifiers Systems Workshop, Reykavik, Iceland, 2009.
- W. Cheng, L.O. Hall, D.B. Goldgof, C. Hu and I. Soto, Automatic Red Tide Detection from MODIS Satellite Images, IEEE International Conference on Systems, Man and Cybernetics, San Antonio, Tx. 2009.
- L.O. Hall and D.B. Goldgof, On Convergence properties of the Singlepass and Online Fuzzy C-Means Algorithm, IEEE International Conference on Fuzzy Systems, July, 2010.
- J.K. Parker, L.O. Hall, and A. Kandel, Scalable Fuzzy Neighborhood DBSCAN, IEEE International Conference on Fuzzy Systems, July, 2010.
- Y. Gu and L.O. Hall and D.B. Goldgof, Evaluating Scalable Fuzzy Clustering, IEEE International Conference on Systems, Man and Cybernetics, October 2010.
- J. Canul-Reich, L.O. Hall, D.B Goldgof and S.A. Eschrich, Filtering for Improved Gene Selection on Microarray Data, IEEE International Conference on Systems, Man and Cybernetics, October 2010.
- D. Elozory, O. Bonam, K. Kramer, D. Goldgof, L. Hall, O. Mangual, P. Mouton, "Automatic Location of Microscopic Focal Planes for Computerized Stereology", Proceedings of SPIE Medical Imaging Conference, Orlando, FL 2011.
- O. Bonam, D. Elozory, K. Kramer, D. Goldgof, L. Hall, O. Mangual, P. Mouton,"Toward Automated Quantification of Biological Microstructures Using Unbiased Stereology", Proceedings of SPIE Medical Imaging Conference, Orlando, FL 2011.
- Kurt Kramer, Dmitry B. Goldgof, Lawrence O. Hall, Andrew Remsen, Increased Classification Accuracy and Speedup Through Pair-wise Feature Selection for Support Vector Machines, IEEE SSCI, April, 2011.
- Larry Shoemaker and Lawrence O. Hall, Anomaly Detection using Ensembles, Multiple Classifier Systems, June 2011.
- John N. Korecki, Lawrence O. Hall, Dmitry Goldgof, Steven Eschrich, Procedure for Stability Analysis of Gene Selection from Cross-Site Gene Expression Data, IEEE International Conference on Systems, Man and Cybernetics, Oct. 2011.
- Satrajit Basu, Lawrence O. Hall, Dmitry B. Goldgof, Yuhua Gu, Virendra Kumar, Jung Choi, Robert J. Gillies, and Robert A. Gatenby, Developing a Classifier Model for Lung Tumors in CT-scan Images, IEEE International Conference on Systems, Man and Cybernetics, Oct. 2011.
- Sergiy Fefilatyev, Kurt Kramer, Lawrence Hall, Dmitry Goldgof, Rangachar Kasturi, Andrew Remsen, Kendra Daly, Detection of Anomalous Particles from Deepwater Horizon Oil Spill Using SIPPER3 Underwater Imaging Platform, IEEE ICDM Workshop on Data Mining Case Studies, Honorable Mention Best Paper, Dec. 2011.

- Jonathon K. Parker and Lawrence O. Hall and James C. Bezdek, Comparison of Scalable Fuzzy Clustering Methods, WCCI 2012, June, Brisbane Australia.
- Lawrence O. Hall, Exploring Big Data with Scalable Soft Clustering, SMPS'12, 6th International Conference on Soft Methods in Probability and Statistics, Konstanz Germany, October 2012.
- Baishali Chaudhury, Kurt Kramer, Daniel Elozory, Gerry Hernandez, Dmitry Goldgof, Lawrence O. Hall, Peter R.Mouton, A novel algorithm for automated counting of stained cells on thick tissue sections, Computer-Based Medical Systems (CBMS), 2012 25th International Symposium on , vol., no., pp.1-6, 20-22 June 2012 doi: 10.1109/CBMS.2012.6266296.
- Fefilatyev, Sergiy, Shreve, Matthew, Kramer, Kurt, Hall, Larry, Goldgof, Dmitry, Kasturi, Rangachar, Daly, Kendra, Remsen, Andrew, Bunke, Horst, Label-Noise Reduction with Support Vector Machines, 21st International Conference on Pattern Recognition, Nov. 2012, Japan.
- M. Zhou, L. Hall, D. Goldgof, R. Gatenby, "Survival time prediction of patients with glioblastoma multiforme tumors using spatial distance measurement", *SPIE Medical Imaging 2013*, Orlando, FL, 2/2013.
- M. Raghavan, M. Zhou, L. Hall, D. Goldgof, R. Gatenby, "Radiomics of Sarcoma-Computer Aided Image Analysis and Characterization of Tumor Heterogeneity", *Socoety of Skeletal Radiology 2013 Annnual Meeting*, San Antonio, TX, 3/2013, (abstract)
- Henry Krewer, Benjamin Geiger Lawrence O. Hall, Dmitry B. Goldgof, , Yuhua Gu, Melvyn Tockman, Robert J. Gillies, Effect of Texture Features in Computer Aided Diagnosis of Pulmonary Nodules in Low-Dose Computed Tomography, IEEE International Conference on Systems, Man and Cybernetics, Oct. 2013, Manchester, UK.
- Mu Zhou, Lawrence O. Hall, Dmitry B. Goldgof, Robert A.Gatenby, Robert J.Gillies, A Texture Feature Ranking Model for Predicting Clinical Survival Time on Brain Tumor, IEEE International Conference on Systems, Man and Cybernetics, Oct. 2013, Manchester, UK.
- Chakeri, A.; Nekooimehr, I.; Hall, L.O., "Dempster-Shafer theory of evidence in Single Pass Fuzzy C Means," Fuzzy Systems (FUZZ), 2013 IEEE International Conference on , vol., no., pp.1,5, 7-10 July 2013 doi: 10.1109/FUZZ-IEEE.2013.6622476
- B. Chaudhury, H. Phoulady, D. Goldgof, L. Hall, P. Mouton, "An Ensemble Algorithm Framework for Automated Stereology of Cervical Cancer ", *The International Conference on Image Analysis and Processing (ICIAP)*, Naples, Italy, 9/2013.
- M. Raghavan, H. Farhidzadeh, M. Zhou, D. Goldgof, L. Hall, R. Gatenby, "Image based prediction of treatment response and disease course in extremity soft tissue sarcoma", *Society of Skeletal Radiology 2014 Annual Meeting*, San Diego, CA, 3/2014 (abstract).
- B. Chaudhury, L. Hall, D. Goldgof, R. Gatenby, R. Gillies, J. Drukteinis, "New method for predicting estrogen receptor status utilizing breast MRI texture kinetic analysis", *SPIE Medical Imaging 2014*, San Diego, CA, 2/2014.
- H. Farhidzadeh, M. Zhou, D. Goldgof, L. Hall, M. Raghavan, R. Gatenby, "Prediction of treatment response and metastatic disease in soft tissue sarcoma", *SPIE Medical Imaging 2014*, San Diego, CA, 2/2014.

- Mu Zhou; Hall, L.O.; Goldgof, D.B.; Gillies, R.J.; Gatenby, R.A., "Exploring Brain Tumor Heterogeneity for Survival Time Prediction," Pattern Recognition (ICPR), 2014 22nd International Conference on , vol., no., pp.580,585, 24-28 Aug. 2014
- Chakeri, A.; Hall, L.O., "Dominant Sets as a Framework for Cluster Ensembles: An Evolutionary Game Theory Approach," Pattern Recognition (ICPR), 2014 22nd International Conference on , vol., no., pp.3457,3462, 24-28 Aug. 2014
- Chaudhury, B.; Zhou, M.; Goldgof, D.B.; Hall, L.O.; Gatenby, R.A.; Gillies, R.J.; Drukteinis, J.S., "Using features from tumor subregions of breast DCE-MRI for estrogen receptor status prediction," Systems, Man and Cybernetics (SMC), 2014 IEEE International Conference on , vol., no., pp.2624,2629, 5-8 Oct. 2014
- Phoulady, H.A.; Chaudhury, B.; Goldgof, D.; Hall, L.O.; Mouton, P.R.; Hakam, A.; Siegel, E.M., "Experiments with large ensembles for segmentation and classification of cervical cancer biopsy images," Systems, Man and Cybernetics (SMC), 2014 IEEE International Conference on , vol., no., pp.870,875, 5-8 Oct. 2014
- Lawrence O. Hall and Alireza Chakeri, Relational Data Partitioning using Evolutionary Game Theory, 2014 IEEE Symposium Series on Computational Intelligence, Orlando, FL, 12/2014.
- Mu Zhou, Lawrence O. Hall, Dmitry B. Goldgof, Robert J. Gillies, Robert A. Gatenby, Decoding brain cancer dynamics: a quantitative histogram-based approach using temporal MRI, *SPIE Medical Imaging 2015*, Orlando, FL., 2/2015.
- Mu Zhou, Lawrence O. Hall, Dmitry B. Goldgof, Robert J. Gillies, Robert A. Gatenby, Imbalanced learning for clinical survival group prediction of brain tumor patients, *SPIE Medical Imaging 2015*, Orlando, FL., 2/2015.
- Baishali Chaudhury, Mu Zhou, Dmitry B. Goldgof, Lawrence O. Hall, Robert A. Gatenby, Robert J. Gillies, Jennifer S. Drukteinis, Identifying metastatic breast tumors using textural kinetic features of a contrast based habitat in DCE-MRI, *SPIE Medical Imaging 2015*, Orlando, FL., 2/2015.
- Hamidreza Farhidzadeh, Baishali Chaudhury, Mu Zhou, Dmitry B. Goldgof, Lawrence O. Hall, Robert A. Gatenby, Robert J. Gillies, Meera Raghavan Prediction of treatment outcome in soft tissue sarcoma based on radiologically defined habitats, *SPIE Medical Imaging 2015*, Orlando, FL., 2/2015.
- Baishali Chaudhury, Dmitry B. Goldgof, Lawrence O.Hall, Robert A.Gatenby, Robert J.Gillies, Jennifer S.Drukteinis, Correlation based random subspace ensembles for predicting number of axillary lymph node metastases in breast DCE-MRI tumors, Systems, Man and Cybernetics (SMC), 2015 IEEE International Conference on, Hong Kong, China, 2015.
- Hailing Zhou, Dmitry Goldgof, Samuel Hawkins, Lei Wei, Ying Liu, Doug Creighton, Robert Gillies, Lawrence O. Hall and Saeid Nahavandi, A robust approach for automated lung segmentation in thoracic CT, Systems, Man and Cybernetics (SMC), 2015 IEEE International Conference on, Hong Kong, China, 2015.
- Hamidreza Farhidzadeh, Dmitry B. Goldgof, Lawrence O. Hall, Robert A. Gatenby, Robert J. Gillies, Meera Raghavan, Texture feature analysis to predict metastastic and necrotic soft tissue sarcomas, Systems, Man and Cybernetics (SMC), 2015 IEEE International Conference on, Hong Kong, China, 2015.

- Alireza Chakeri, L. O. Hall, Large Data Clustering using Quadratic Programming: A Comprehensive Quantitative Analysis, International Conference on Data Mining - Big Data Workshop, Nov. 2015.
- Matthew B. Schabath, Ying Liu, Hua Wang, Olya Stringfield, Yoganand Balagurunathan, Alberto Garcia, Lawrence Hall, Dmitry Goldgof, Robert J. Gillies, Diagnostic and predictive quantitative-imaging features in lung cancer screening, Journal of Thoracic Oncology, Volume 11, Issue 2, Supplement, February 2016, Pages S41-S42, ISSN 1556-0864, http://dx.doi.org/10.1016/j.jtho.2015.12.070., AACR 2016.
- Baishali Chaudhury, Mu Zhou, Hamidreza Farhidzadeh, Dmitry B. Goldgof, Lawrence O. Hall, Robert A. Gatenby, Robert J. Gillies, Robert J. Weinfurtner, Jennifer S. Drukteinis, "Predicting Ki67% expression from DCE-MR images of breast tumors using textural kinetic features in tumor habitats," Proc. SPIE 9785, Medical Imaging 2016: Computer-Aided Diagnosis, 97850T
- Hady Ahmady Phoulady, Dmitry B. Goldgof, Lawrence O. Hall, Peter R. Mouton, An Approach to Detect and Segment Overlapping Cells in Multi-Layer Cervical Cell Volume Images, International Symposium on Biomedical Imaging (ISBI) 2016, Prague, Czech Republic.
- R. Paul, S. H. Hawkins , L. O. Hall , D.B. Goldgof , R. J. Gillies, Combining Deep Neural Network and Traditional Image Features to Improve Survival Prediction Accuracy for Lung Cancer Patients from Diagnostic CT, IEEE International Conference on SMC, Oct. 16.
- Farhidzadeh, H., Chaudhury, B., Scott, J. G., Goldgof, D. B., Hall, L. O., Gatenby, R. A., ... and Raghavan, M. Signal intensity analysis of ecological defined habitat in soft tissue sarcomas to predict metastasis development. In Medical Imaging 2016: Computer-Aided Diagnosis (Vol. 9785, p. 97851H). International Society for Optics and Photonics.
- Hamidreza Farhidzadeh, Dmitry B. Goldgof, Lawrence O. Hall, Jacob G. Scott, Robert A. Gatenby, Robert J. Gillies , Meera Raghavan, A Quantitative Histogram-based Approach to Predict Treatment Outcome for Soft Tissue Sarcoma Using Pre- and Post-treatment MRIs, IEEE International Conference on SMC, Oct. 16.
- Cherezov Dmitry, Samuel Hawkins, Dmitry Goldgof, Lawrence Hall, Matthew Schabath, Robert Gillies, Yoganand Balagurunathan, Improving malignancy prediction through feature selection informed by nodule size ranges in NLST, IEEE International Conference on SMC, Oct. 16.
- Alireza Chakeri, Hamidreza Farhidzadeh, Lawrence O. Hall, Spectral Sparsification in Spectral Clustering, International Conference on Pattern Recognition, Dec. 2016.
- Kaoutar B. Ahmed, Lawrence O. Hall, Dmitry B. Goldgof, Renhao Liu, Robert A. Gatenby, "Fine-tuning convolutional deep features for MRI based brain tumor classification," Proc. SPIE 10134, Medical Imaging 2017: Computer-Aided Diagnosis, 101342E (3 March 2017)
- R. Ekambaram, D.B. Goldgof, L.O. Hall, Finding Label Noise Examples in Large Scale Datasets, IEEE International Conference on SMC, Oct. 2017.
- Renhao Liu, Lawrence O. Hall, Kevin W. Bowyer, Dmitry B. Goldgof, Robert Gatenby, and Kaoutar Ben Ahmed, Synthetic Minority Image Over-sampling Technique: How to Improve AUC for Glioblastoma Patient Survival Prediction, IEEE International Conference on SMC, Oct. 2017.

- R. Paul, M. Shafiq-ul-Hassanb, E. Moros, R. Gillies, L. Hall, D. Goldgof, "Stability of deep features across CT scanners and field of view using a physical phantom", SPIE Medical Imaging 2018, Houston, TX, 2/2018.
- R. Paul, Y. Liu, Q. Li, L.O. Hall, D. Goldgof, Y. Balagurunathan, M. Schabath and R. Gillies, "Representation of Deep Features using Radiologist defined Semantic Features", IJCNN, 2018.
- R. Paul, L. O. Hall, D. B. Goldgof, M.B. Schabath, R. J. Gillies, "Predicting Nodule Malignancy using a CNN Ensemble Approach", IJCNN 2018.
- S. S. Alahmari, D. Goldgof, L. O. Hall, P. Dave, H. A. Phoulady, and P. R. Mouton, Iterative Deep Learning Based Unbiased Stereology With Human-in-the-Loop, International Conference on Machine Learning Applications, 2018.
- K. B. Ahmed, L. O. Hall, R. Liu, R.A. Gatenby and D.B. Goldgof, Neuroimaging Based Survival Time Prediction of GBM Patients Using CNNs from Small Data, IEEE International Conference on Systems, Man and Cybernetics, Oct. 2019.
- R. Liu, F. Mubang, L.O. Hall, S. Horawalavithana, A. Iamnitchi, J. Skvoretz, Predicting Longitudinal User Activity at Fine Time Granularity in Online Collaborative Platforms, IEEE International Conference on Systems, Man and Cybernetics, Oct. 2019.
- S Al Ahmari and D Goldgof and L Hall and P Mouton, Automatic Cell Counting using Active Deep Learning and Unbiased Stereology, IEEE International Conference on Systems, Man and Cybernetics, Oct. 2019.
- Sameera Horawalavithana, Abhishek Bhattacharjee, Renhao Liu, Nazim Choudhury, Lawrence O. Hall, and Adriana Iamnitchi. 2019. Mentions of Security Vulnerabilities on Reddit, Twitter and GitHub. In IEEE/WIC/ACM International Conference on Web Intelligence (WI '19). Association for Computing Machinery, New York, NY, USA, 200–207. DOI:https://doi.org/10.1145/3350546.3352519
- Dave P, Goldgof D, Hall LO, Alahmari S, Mouton PR. Novel Stain Separation Method for Automatic Stereology of Immunostained Tissue Sections. Innov Aging. 2019;3(Suppl 1):S256. Published 2019 Nov 8. doi:10.1093/geroni/igz038.958
- V. Cross, M. Zmuda, R. Paul, L.O. Hall, Fuzzy Set Similarity for Feature Selection in Classification, IEEE International Conference on Fuzzy Systems, 2020.
- Renhao Liu, Frederick Mubang, and Lawrence Hall, Simulating Temporal User Activity on Social Networks with Sequence to Sequence Neural Models, IEEE International Conference on Systems, Man, and Cybernetics, 2020.
- Paul, R., Schabath, M., Gillies, R., Hall, L. and Goldgof, D., Mitigating adversarial attacks on medical image understanding systems. In 2020 IEEE 17th International Symposium on Biomedical Imaging (ISBI) (pp. 1517-1521), April, 2020.
- Rahul Paul, Sherzod Kariev, Dmitry Cherezov, Matthew B. Schabath, Robert J. Gillies, Lawrence O. Hall, Dmitry B. Goldgof, "Deep radiomics: deep learning on radiomics texture images," Proc. SPIE 11597, Medical Imaging 2021: Computer-Aided Diagnosis, 1159705 (15 February 2021); https://doi.org/10.1117/12.2582102

- H. Morera, P. Dave, Y. Kolinko, K. Allen, S. Alahmari, D. Goldgof, L. O. Hall, P. R. Mouton, "Classification of global microglia proliferation based on deep learning with local images," Proc. SPIE 12032, Medical Imaging 2022: Image Processing, 120322K (4 April 2022); https://doi.org/10.1117/12.2611581
- Nikolai Fetisov, Lawrence O. Hall, Dmitry B. Goldgof, Matthew B. Schabath, "Survival time prediction from unannotated lung cancer histopathology images," Proc. SPIE 12039, Medical Imaging 2022: Digital and Computational Pathology, 120391C (4 April 2022); https://doi.org/10.1117/12.2611232

Non-refereed Conferences:
(With T. Higgins and C. Eggert)
Backpac: A Parallel Goal-Driven Reasoning System, IJCAI-89 Workshop on Parallel Algorithms for Machine Intelligence, Detroit, Aug. 1989.

A Genetic Approach to Fuzzy Clustering, First International Conference on Neural Networks, Optimization, and nonlinear dynamics, Atlanta, May 1995.

Presentations:
Effective Knowledge Acquisition from Experts, **Conference on Knowledge- Seeking by Questioning, Florida State University, Tallahassee, April 1985.**

Parallel Fuzzy Logic Inference, **Second Annual Engineering Research Seminar, University of South Florida, Tampa, April 1987.**

Preliminary Results on Parallel Reasoning With Rule-Based Systems, **Third Annual Engineering Research Seminar, University of South Florida, Tampa, March 1988.**

Invited Talks and Panels:

- **Current Research in Expert Systems,** *ACM* **Professional Development Seminar, Tampa Bay Chapter, Tampa, Fl., June 1988.**
- **Reasoning under Uncertainty with Point-valued vs. Interval-valued Representations, NASA-Ames Research Center, Moffett Field, CA., July, 1988.**
- **Parallel Reasoning for Intelligent Systems,** *AAAI-88* **Workshop on Parallel Algorithms for Machine Intelligence and Pattern Recognition, Minneapolis, Min., 1988.**
- **Panel member of the Knowledge Worker Productivity Challenge discussion panel sponsored by Tampa Bay Chapter of the ACM, Nov. 10, 1988, Hillsborough C.C.**
- *Parallelism in Expert Systems*, **Eckerd College, Feb. 1990.**
- *Artificial Intelligence*, **Tau Beta Pi awards banquet, April 1990.**
- *A Hybrid Connectionist, Symbolic Learning System*, **F.S.U., April 1990.**
- *Recognizing Airplanes from Radar Returns*, **Embry-Riddle Aeronautical University, April 1992.**

- *A Fuzzy Hybrid Connectionist System*, **Third International Workshop on Neural Networks and Fuzzy Logic'92, Pg. 12, Houston, TX, June 1992.**
- *SC-net: A Hybrid, Connectionist, Symbolic Learning system*, **University of Central Florida, Orlando, Nov. 20, 1992.**
- **Generating Fuzzy Rules from a Connectionist Network, International Conference on Neural Networks, Orlando, Fl. June 29, 1994.**
- **Obtaining Fuzzy Classification Rules in Segmentation, IPMU, Paris, FR, July 1994.**
- **Fuzzy Logic with Applications, IEEE Engineering in Medicine and Biology Conference, Workshop on hybrid systems, Baltimore, Nov. 1994.**
- **A Comparison of Neural Network and Fuzzy Clustering Techniques in Segmenting Magnetic Resonance Images of the Brain, IEEE Engineering in Medicine and Biology Conference, Workshop on Fuzzy Logic, Baltimore, Nov. 1994.**
- **Fast Fuzzy Clustering with Application to Fuzzy Rule Generation, Tokyo, Japan, April, 1995.**
- **A Genetic Approach to Fuzzy Clustering, First International Conference on Neural Networks, Optimization, and nonlinear dynamics, May 1995.**
- **The use of Fuzzy Rules in Classification of Normal Human Brain Tissues, NAFIPS'95, College Park, MD., Sept. 1995.**
- **Generating Fuzzy Rules from Decision Trees, IFSA'97, June 97.**
- **Speaker Recognition with a self-configuring neural network, International Conf. on Neural Networks, June 97.**
- **Fuzzy Logic Provides Crisp Magnetic Resonance Image Segmentation, FUZZY'97, May, 1997.**
- **The Future of Intelligent Systems, Panel at the IEEE Conference on Systems, Man and Cybernetics, San Diego, Oct. 1998.**
- **Launching the Electronic Option of the IEEE Transactions on Systems, Man and Cybernetics, Part B, Banquet Talk at IEEE Conference on Systems, Man and Cybernetics, Tokyo, Japan, Oct. 1999.**
- **Combining Classifiers: A Liberal Overview, Intelligent Data Analysis Seminar, Dagstuhl, Germany, Aug., 2000.**
- **Predicting Potential Drug Activity from High Throughput Screens, University of Notre Dame, October 2001, South Bend IN and Moffitt Cancer Center, Tampa, Fl. July 2001.**
- **Distributed Data Mining, University of Missouri, Columbia, Missouri, February, 2002.**
- **Distributed Data Mining to Build Models of Extreme Data Sets and its Applications to Complex Systems, International Conference on Systems Complexity, Qingdao, China, May 2002.**

- **Segmenting (Non-)enhanced Brain Tumors from Normal Tissues in Magnetic Resonance Images, Neurology and radiology department seminar, University of Illinois at Chicago, October, 2002.**
- **An Analysis of Neural Network Versus Decision Tree Performance on a Bio-Informatics Problem, Workshop on Information Technology, Rabat, Morocco, March, 2003.**
- **Distributed Learning for the Analysis of Extreme Data sets, Keynote address at the Fifth International Symposium on Intelligent Data Analysis, Berlin, Germany, August, 2003.**
- **Adapting Computational Intelligence to Large Data Sets, Keynote talk at: The second international conference on Computational Intelligence, Robotics and Autonomous Systems, Singapore, Dec. 16, 2003.**
- **Learning from Large Amounts of Data, Keynote talk at: The International Conference on Machine Learning and Cybernetics, August 27, 2004, Shanghai, China.**
- **Reusing Information by Learning Models from Extreme Data Sets, Keynote : IEEE International Conference on, Information Reuse and Integration, 11/8/2004, Las Vegas, NV.**
- **Scaling and Fortifying Fuzzy Clustering for Data Analysis, Semi-Plenary, German Classification Conference, Magdeberg, Germany, March 10, 2005.**
- **Swarm Based Clustering with Partition Validity, University of Konstanz, Konstanz Germany, July 20, 2005.**
- **Learning from Large Amounts of Data, University of Concordia/IEEE SMC Society Chapter, Montreal, CA, Dec. 13, 2005.**
- **Panel on: The future of biometrics - research, application and social challenges and how do we overcome, at the CVPR 2006 Biometrics Workshop, June 18, 2006.**
- **Learning in the extreme: Lots of data, lots of features, and/or lots of class skew, Keynote, IEEE Adaptive Learning Workshop (SMCALS), Logan Utah, July 25, 2006.**
- **What are Classifier Ensembles Good for Anyway and How Would You Know?, Keynote, International Conference on Pattern Recognition, Hong Kong, Thursday, August 24, 2006.**
- **Learning from Large Amounts of Data, University of Bern, Bern Switzerland, October 31, 2006.**
- **Multiple Classifier Systems and their Evaluation, Univ. of Konstanz, Konstanz Germany, November 8, 2006.**
- **Learning from Large Amounts of Data, SMC Hiroshima Chapter, Okayama University, Okayama, Japan, Dec. 15, 2006.**
- **R. Paul, M. Shafiq-ul-Hassanb, E. Moros, R. Gillies, L. Hall, D. Goldgof, "Stability of deep features across CT scanners and field of view using a physical phantom", SPIE Medical Imaging 2018, Houston, TX, 2/2018.**

- **What are Classifier Ensembles Good for Anyway and How Would You Know?, Dept. of CS Grad made Good series, Florida State University, October 26, 2007.**
- **Scalable Fuzzy Clustering Algorithms, Keynote, NAFIPS 2008, N.Y., N.Y.**
- **Scalable Clustering Algorithms, Keynote, IEEE International Conference on Systems, Man and Cybernetics, Oct. 2008, Singapore.**
- **Scaling Soft Clustering to Very Large Data Sets, Jinwen University of Science and Technology, Taipai, Taiwan, and National I-Lan University, National Taichung University, Taiwan, August 2009.**
- **Finding the right genes for Disease and Prognosis Prediction, Plenary, International Conference on Systems Science and Engineering, Taipei, Taiwan, July 2010.**
- **Scaling Soft Clustering to Very Large Data Sets, National Taiwan University, July 2010.**
- **Finding the right genes for Disease and Prognosis Prediction, Suzhou University, Suzhou China, March 2011**
- **What are Classifier Ensembles Good for Anyway and How Would You Know?, Nanjing University, Nanjing, China, March 14 2011**
- **Scaling Soft Clustering to Very Large Data Sets, Xidian University, X'ian, China, March 2011**
- **Exploring Big Data with Scalable Soft Clustering, SMPS'12, Konstanz, Germany, October 2012.**
- **Exploring Big Data with Scalable Soft Clustering, Keynote, Mathematical Association of America, Florida Sectional Conference, Feb. 2013.**
- **Building Prognostic Models for Cancer from Medical Images, Keynote, IEEE International Conference on Systems, Man and Cybernetics, Oct. 2013, United Kingdom.**
- **Do we need new learning algorithms or just the ability to blend existing ones?, Norbert Wiener Panel Session, IEEE International Conference on Systems, Man and Cybernetics, Oct. 2014, San Diego.**
- **What Might be Predicted from Medical Image Mining,** *Keynote* **CIDM Track, 2014 IEEE Symposium Series on Computational Intelligence, December 10, 2014, Orlando Florida.**
- **What Might be Predicted from Medical Image Mining, Distinguished Lecture Series, University of Technology, Sydney Australia, April 29, 2015.**
- **What Might be Predicted from Medical Image Mining, Computer Science and Engineering Lecture Series, University of Notre Dame, Sept. 24, 2015.**
- **Leveraging Big Data in Medical Image Analysis, Invited Talk, 2016 International Conference on Intelligence Science and Big Data Engineering, Guangzhou, China, May 14, 2016.**

- **Active Cleaning of Label Noise Applied to Imagenet, Nanjing University, Nanjing, China, May 18, 2016.**
- **Leveraging Big Data in Medical Image Analysis, Nanjing University of Science and Technology, Nanjing, China May 18, 2016.**
- **Transfer Learning using Deep Features for Medical Image Analysis, University of Notre Dame, Nov. 10, 2016.**
- **Adapting Deep Learning for Medical Image Understanding, 2017 IEEE Computational Intelligence Society Summer School on Recent Advances in Computational Intelligence. Sept. 19, 2017.**
- **Deep Learning - From Theory to Practice, ISCAS, May 2018 - Tutorial, Florence Italy.**
- **Generative Adversarial Networks for Data Augmentation: Promise and Pitfalls , 2018 IISA International Conference on Statistics, May 2018, Gainesville, FL.**
- **Predicting Nodule Malignancy using a CNN Ensemble Approach, All Children's Hospital, St. Petersburg, Fl., June 2018.**
- **Keynote: Emerging trends behind intelligent self-service - Big data machine learning, Sunview Software Users Conference, Tampa, Jan. 2019.**
- **How Deep Learning is Bringing Artificial Intelligence into Everyday Use, Naples Mens Group, Naples, FL. Feb. 2019.**
- **Artificial Intelligence Through Deep Learning, Florida Gulf Coast University, Ft. Myers, FL. Feb. 2019.**
- **Keynote: Explorations in Deep Learning from BIG Data to Small Data, IEEE Region 10 Symposium (TENSYMP), Kolkata, India, June 7, 2019.**
- **Plenary Talk: Explorations in BIG Data and sMall Data with a Fuzzy Perspective, IEEE International Conference on Fuzzy Systems, New Orleans, June, 26, 2019.**
- **Fuzziness in Artificial Intelligence, Panel Chair, IEEE International Conference on Fuzzy Systems, New Orleans, June, 2019.**
- **Reproducible Research in the Fuzzy Community, Panel Member, IEEE International Conference on Fuzzy Systems, New Orleans, June, 2019.**
- **History Panel, IEEE Systems, Man and Cybernetics Conference, Bari, Italy Oct. 2019**
- **An Overview of Machine/Deep Learning for Artificial Intelligence Solutions", IEEE KOLKATA SECTION, March 20, 2021, my office.**
- **Deep Learned Models from Medical Images: Successes and Big Challenges, FLAIRS 2021, May 17, Miami, FL.**
- **Deep Learned Models from Medical Images: Successes and Big Challenges, All India Seminar on "Technological Advancements in Healthcare, Challenges - A Role of Medical image Processing, The Institute of Engineers (India) and IEEE HYDERABAD SECTION, 9/17/21, my office.**

- **Explorations in Simulating Future Activity on Social Networks, PREMI 2021, Dec. 14, My Office.**
- **Learning to Simulate Future Activity on Social Networks , Distinguished Lecture Series, Florida Atlantic University, 4/28/22, Boca Raton, FL.**

Technical/Internal Reports:

- *Parallelism in Artificial Intelligence Programs*, **NASA-Ames Research Center, RCR branch report 2017, Moffet Field, Ca., 1987.**
- *Architectures for Reasoning in Parallel*, **NASA-Ames Research Center, RCR branch report 2018, Moffet Field, Ca., 1987.**
- **L.O. Hall and M.R. Berthold,** *Visualizing Fuzzy Points in Parallel Coordinates*, **University of California at Berkeley, Computer Science Division, Report No. UCB/CSD-99-1082, Dec. 99.**
- **Horia-Nicolai L. Teodorescu, Abraham Kandel and Lawrence O. Hall Report of research activities in fuzzy AI and medicine at USF CSE, Artificial Intelligence in Medicine Volume 21, Issue 1-3, January - March 2001 pp 177-183**

Research Grants:

1. **Center For Micro-electronics Design and Test at U.S.F., August 1987 to August 1988,** *Architectures for Reasoning in Parallel*, **$30,848.**
2. **NASA-Ames Research Center, January 1, 1988 to December 31, 1989,** *Architectures For Reasoning in Parallel*, **NAG-2-487, $43,000.**
3. **Florida High Technology and Industry Council, Simulation and Training Section,** *Development of an Expert System to Generate Mission Scenarios for Large-Scale Team Training Devices*, **March 1, 1988 to May 1, 1989, 2180-061-lo, $38,655.**
4. **Consultant to: Florida High Technology and Industry Council, Software section,** *Fourth Generation Workstation Software for Supercomputer Applications: Domain Specific User Interfaces and Automated Job Control*, **May 1, 1988 to May 1, 1989, $20,000. (Chris Lacher, P.I.)**
5. **NASA-Headquarters minority student program, supplement to NAG-2-487 January 1, 1989 - December 31, 1989, $17,000.**
6. **Florida High Technology and Industry Council, Computer Integrated Manufacturing Section,** *Automatic Knowledge Acquisition for Expert Systems*, **January 1, 1990-December 31, 1993, $233,260.00 (with R.A. Perez).**
7. **Florida Space Grant Consortium, Undergraduate Space Research Participation, $4,000.00, ($2,000.00 matching from USF), May 1, 1990-September 1, 1990.**
8. **National Science Foundation, Research Equipment Program,** *MIMD: Parallel Processor*, **$188,900, ($94,500.00 matched by USF). CDA-8920890, April 1, 1990, (with K. Bowyer).**

9. **Honeywell Systems and Research Center,** *Validation of Knowledge-based Systems*, **6/15/90-6/30/91, $44,800.**

10. **Air Force Office of Scientific Research,** *The Enhancement of Connectionist Methods for Target Recognition*, **1/1/91-12/31/91, $27,200.00, ($7,200.00 matched by USF).**

11. **Florida High Technology and Industry Council, Software Section Parallel Expert Systems, 1/1/91-12/31/93, $65,000.00.**

12. **National Science Foundation, Research Experiences for Undergraduates Supplement to NSF grant CDA-8920890, $13,000.00, ($3,000.00 matched by USF), 5/1/91-4/1/92.**

13. **Whitaker Foundation, The Use of Hybrid Methods to Segment Magnetic Resonance Images for Improved Cancer Detection and Treatment, $176,000.00, 5/1/92-4/31/95.**

14. **Honeywell, Inc. Parallel Expert Systems for Grid Architectures, $25,000.00, 5/1/92-4/31/93.**

15. **National Institutes of Health, NCI (CA59 425-01), MRI Segmentation for Tumor Volume Measurements, $370,000.00, 4/1/93-3/31/96, (Co-PI with L.P. Clarke).**

16. **Seaway Technologies, Inc. Speaker Recognition with Neural Networks in a Phrase Independent System, $12,100.00, July 1, 1994- June 31, 1995.**

17. **Harris Corporation, Parallel ART, $49,000.00, Sept. 1, 1994-May 1, 1996.**

18. **Moffitt Cancer Center, A Qualitative Reasoning Expert System for Assigning Patients to Clinical Trials, $30,200.00, May 1, 1997 - May. 1, 1999. (Co-PI Dmitry Goldgof)**

19. **Sandia National Laboratory, AVATAR: Parallel Decision Trees for Visualization, $1,553,000, Nov. 1997 - Oct. 2008. (Co-PI Kevin Bowyer)**

20. **National Science Foundation, Acquisition of a Computer Server for Image Analysis Research that Emphasizes Empirical Performance Characterization, $88,848, 1/1/98-12/31/98. (Co-PI Kevin Bowyer, Dmitry Goldgof, Sudeep Sarkar)**

21. **Army Research Laboratory,Robust Recognition of Interesting Objects from Images, $50,000, 12/99-9/31/01**

22. **Army Breast Cancer Research Program, Automated Matching of Patients to Clinical Trials, $307,000, 7/3/00-8/2/03 (Co-PI's D. Goldgof and J. Krischer)**

23. **Tripos, Inc., $160,000, 8/1/00-7/31/02, Approximate Data Mining from High Throughput Screening Data**

24. **A Computer-Intensive Sensor-Based Environment for Research in Computer Vision and Artificial Intelligence, National Science Foundation, 9/15/01-9/14/02,$141,213+$72,000 matching, (S. Sarkar, P.I., D. Goldgof, E. Fink (co-PIs)).**

25. **Partnership for MR imaging spectroscopic data processing, National Institutes of Health, 7/1/02-6/30/08, $480,000 (with UCSF, U Miami, UCLA, total funds $4.9M).**

26. Development of Automated Image Analysis Software for Suspended Marine Particle Classification, *Department of Defense, Office of Naval Research*, **1/1/2002 - 12/31/2002, $290,809 (co-PI's S. Samson, D. Goldgof, T. Hopkins). 7/1/2002 - 4/30/2006, $263,695 (co-PI's S. D. Goldgof, Samson, T. Hopkins, L. Hall).**

27. Rare Diseases Data and Technology Coordinating Center, *National Institutes of Health*, **8/1/03-7/31/05, $35,00.00 (Overall P.I. Jeff Krischer)**

28. Increasing the Accrual of Clinical Trials, *National Institutes of Health, NCI*, **6/1/05-11/30/07 (co-PI's D. Goldgof, C. Garrett),$286,325**

29. Graduate Student Support in Bioinformatics, Moffitt Cancer Center, 8/15/08-5/10/15, $155,000, co-PI, D. Goldgof

30. Baseline for Impact Assessment of Zooplankton and Imaging Oil Droplet Detection on West Florida Shelf, BP/FIO - Gulf Oil Spill Prevention, Response and Recovery Grants Program, 9/1/2010 - 8/31/2012, $377,310 (co-PIs, J. Cohen, K. Daly, L. Hall, R. Kasturi).

31. Radiomics of Non-Small Cell Lung Cancer, National Institute of Health (NCI/NIH), 3/9/2010 - 2/28/2015, Moffitt PIs, B. Gilles, B. Gatenby, $2,984,045, USF Subconract $475,000, (USF co-PI, D. Goldgof).

32. A Fully Automatic System for Verified Computerized Stereoanalysis, Stereology Research Center, National Institute of Health (NIMH/NIH/SBIR), 10/1/2009 - 9/31/2012, SRC PI, P. Mouton, $799,812, USF Subcontract $309,842, (USF PI, D. Goldgof).

33. Early Warning 4-D Remote Sensing System to Assess Synoptic Threats to Coastal Ecosystems of Florida and of Adjacent States and Nations, *BP/FIO - Gulf Oil Spill Prevention, Response and Recovery Grants Program*, **9/1/2010 - 8/31/2012, $877,796 - CSE $50,000.00(lead-PI F. Muller-Karger, co-PIs D. Goldgof, C. Hu, subcontracts U Miami, FIT, NOAA/AOML, USM).**

34. Radiomics of Lung Cancer Screening, James and Esther King Program Grant, 9/1/2011- 8/31/2014, $277,000.00 subcontract from $1.275M with Moffitt P.I.'s Bob Gillies and Bob Gatenby, (Goldgof and Hall, Co-P.I.'s on subcontract).

35. An AI System for Effective Defensive Phishing, 05/01/2015 - 12/31/2015, Knowbe4, $22,141.00.

36. II-New: A Research Platform for Heterogeneous, Massively Parallel Computing," (PIs Yicheng Tu, Jay Ligatti, Sudeep Sarkar, Swaroop Ghosh, Sagar A. Pandit, Hall - Senior Personnel), National Science Foundation, 7/1/2015- 6/30/2018, $679,798

37. Radiomics of Non-Small Cell Lung Cancer, National Institute of Health (NCI/NIH), Renewal, 7/1/2016 - 6/31/2021, $2,896,812, Moffitt PI: R. Gillies, USF Subcontract $220,522, (USF co-PI, D. Goldgof), role: USF Co-Principal Investigator.

38. Modeling Information Diffusion Processes with Deep Learning Algorithms, DARPA, 10/1/17 - 12/31/21, $1,704,461.00 (Iamnitchi PI, Hall and Skorvetz co-PIs)

39. **Microscope-based Technology for Automatic Brain Call Counts Using Unbiased Methods, National Science Foundation, STTR (FHTIC match 101,000) (PI: Dmitry Goldgof) 1/1/18 - 12/31/18, $202,000.00**

40. **STTR Phase II: Microscope-based Technology For Automatic Brain Cell Counts Using Unbiased Methods, National Science Foundation (NSF/IIP), 11/1/2019 – 9/31/2022, $749,292, SRC Inc, PI – P. Mouton, USF subcontract $338,712, role: USF co-PI (PI D. Goldgof)**

41. **A Novel, Robust Fake Video Detection System , Defense Intelligence Agency, 6/5/2020-6/4/2021, $904,981.00 role: Co-PI (PI S. Canavan)**

Selected Professional Service:
1. Referee for NAFIPS 1986
2. Referee for Southeastcon 1987
3. Referee for Computer - Special Issue On Multiple Valued Logic
4. Referee for Journal of Mathematical Geology
5. Referee for Florida A.I. Research Symposium 1988-92.
6. Referee for National Science Foundation, Undergraduate Equipment in Science and Engineering 1988.
7. Referee for International Journal of Intelligent Systems.
8. Referee for International Journal of Approximate Reasoning.
9. Referee for National Science Foundation (Database and Expert Systems Div., Cognitive Science Div.)
10. Referee for IEEE Transactions on Systems, Man and Cybernetics.
11. Program committee Florida A.I. Research Symposium 1990-1993,1995.
12. Referee for A.I. Magazine
13. Program Committee SPIE 10-12th Conference on AI Applications
14. Associate Editor **for IEEE Transactions on Systems, Man and Cybernetics, 1992-2002 .**
15. Program advisory board, NAFIPS'92,93.
16. Member Board of Directors NAFIPS 1991-97,98-01. President NAFIPS, 1995-1997.
17. Member International Fuzzy Systems Association Council (1995-97).
18. Program Committee IEEE Tools for AI conference'1993, 99.
19. Co-chair of AAAI Fall Symposium on Machine Learning in Computer Vision, Raleigh, N.C. (1993).
20. Co-program Chair NAFIPS'94 Conference.
21. Program Committee, FUZZ-IEEE'94.
22. Referee for IEEE Transactions on Fuzzy Systems.
23. Referee for International Journal of Expert Systems Research and Applications.
24. National Institutes of Health grant reviewer.
25. Associate Editor **for IEEE Transactions on Fuzzy Systems, 1995-2010.**
26. Program committee for 1995: Fuzzy Logic (SPIE), IFSA'95.
27. Program Committee's 1996: NAFIPS, Fuzz-IEEE, SPIE (Fuzzy Logic), FLAIRS.
28. Program Committee's 1997: NAFIPS, Fuzz-IEEE, SPIE (Fuzzy Logic), FLAIRS, AAAI, IJCAI.
29. Associate Editor Handbook of Fuzzy Computation.
30. Associate Editor Journal of Intelligent Data Analysis '96-12

31. Associate Editor International Journal of Approximate Reasoning '06-
32. General Chair FLAIRS'98.
33. Program Chair NAFIPS'98.
34. Program Committee AAAI'98-99.
35. Program Committee FLAIRS'99-00, FUZZ-IEEE'99-08
36. Program committee 4th International Conference on Advances in Pattern Recognition and Digital Techniques, 99.
37. Administrative Committee IEEE Systems, Man, and Cybernetics Society, 99-01
38. Electronic Editor IEEE Transactions on Systems, Man and Cybernetics, Part B 99-01
39. Editor-in-Chief IEEE Transactions on Systems, Man and Cybernetics, Part B 2002-2005
40. Vice President for membership, IEEE Society on Systems, Man, and Cybernetics, 2002-2004.
41. President-Elect IEEE Society on Systems, Man, and Cybernetics 2005.
42. President IEEE Society on Systems, Man, and Cybernetics 2006-07.
43. Program Committee Workshop on Multi-Media Datamining, KDD 2004.
44. Program Committee ICTAI conference 2002-04
45. Co-Program Chair NAFIPS 04.
46. Program Committee ACM Southeast Conference 2006
47. Program Committee Siam Data Mining Conference 2006-08,10
48. Program Committee Multiple Classifier Systems conference 2005,07-09
49. Program Committee IPMU 2006,08.
50. PC Second International Conference on Pattern Recognition and Machine Intelligence
51. PC CompLife 2006, International conference on machine learning applications 2006
52. PC International Conference on Machine Learning and Cybernetics, 2006-08.
53. PC International Conference on Machine Learning and Applications, 2006-07.
54. Program Committee IEEE International Conference on Data Mining 2005, 07, 09-21
55. Editorial advisory Board, International Journal of Intelligent Computing and Cybernetics
56. Program Committee CIDM 2008.
57. Vice President for Publications IEEE Biometrics Council 2008-10.
58. IEEE TAB Representative to EAB, 2008, PSPB 2008
59. IEEE Periodicals Committee, 2009
60. IEEE Conference Publications Committee 2011
61. IEEE PSPB SPC 2010-12
62. Associate Editor International Journal of Pattern Recognition and Artificial Intelligence, 2007-2020
63. IEEE PSPB 2012-13 as representative to the Institute Editorial Board 2012-13
64. IEEE Publications Conduct Committee member 2012-13, Chair 2014-15, Member 2016
65. IEEE PSPB 2014-19
66. IEEE TAB/PSPB Products & Services Committee (2013)
67. IEEE Periodicals Review and Advisory Committee (2014-16)
68. Chair IEEE PSPB Strategic Planning Committee 2015-17, Member 2018
69. Treasurer IEEE PSPB 2018-20
70. Co-Program Chair Late Breaking Cybernetics Papers 2017 IEEE SMC Conference
71. Member 2017 IEEE Ad Hoc Committee on Strategic Alignment & Oversight
72. IEEE SMC Society Operating Committee 2013-17
73. IEEE Access Editorial Board, 2013-2018
74. Executive Advisory Board, IEEE Transactions on Fuzzy Systems.

75. Advisory Board Computer Science Dept., Florida State University 2018-
76. Peer Reviewer for Fellows of Indian National Academy of Engineering 2019
77. Co-Chair IEEE TAB/PSPB Ad Hoc on Publications Strategy Implementation 2020
78. IEEE Vice President Publications, Services and Products 2021-22
79. IEEE Board of Directors 2021-22

Courses Taught:

- **at F.S.U.: 1. College Algebra, 2. Business Mathematics, 3. Trigonometry,**
- **4. Fortran For Specialists,**
- **5. Fortran For Non-Specialists**
- **at U.S.F.: 1. Analysis of Algorithms - COT 4400, (Text: Algorithms by Sedgewick; Introduction to Algorithms, second edition, Cormen, Leiserson, Rivest, Stein)**
- **2. Discrete Structures - COT 3001, (Text: Discrete Mathematics for Computer Scientists by Mott, Kandel and Baker)**
- **3. Artificial Intelligence and Expert Systems - CDA 6930, (Texts: Designing Fuzzy Expert Systems by Hall, A Guide to Expert Systems by Waterman, An Introduction to Expert Systems by Jackson)**
- **4. Fuzzy Sets and Intelligent Systems - CDA 6930, (Text: Fuzzy Mathematical Techniques by Kandel)**
- **5. Introduction to Systems Programming/ Operating Systems - COP 4600, (Text: Operating Systems Concepts by Silberschatz and Peterson)**
- **6. Expert and Intelligent Systems - CAP 5682, (Text: Expert Systems: Principles and Programming by Giarratano and Riley)**
- **7. Introduction to Artificial Intelligence - CAP 5625, (Text: The Elements of Artificial Intelligence, Using Common Lisp by Tanimoto)**
- **8. Introduction to Artificial Intelligence and Expert Systems, CIS 4930, (Text: Artificial Intelligence, Structures and Strategies for Complex Problem Solving 2^{nd}, by Luger and Stubblefield.)**
- **9. Operating Systems – COP 6611, (Text: Operating Systems Concepts by Silbershatz and Galvin)**
- **10. Program Design – CIS 4930, (Text: C: How to Program by Deitel and Deitel)**
- **11. Machine learning (Text: Introduction to Machine Learning by Ethem Alpaydin)**
- **12. Data Mining (Texts: Data Mining, I. Witen and E. Frank, Machine Learning by Tom Mitchell)**

Graduate Students:
47 M.Sc. completed, (Peter Cheng, Bharadwaj Tirumala, Ana Cheng, Claudia Industrious, Tim Higgins, Steve Romaniuk, Onzik Kim, George Lysy, Ray Mljeneck, Amine Bensaid, Lokesh Prasad, Jim Powell, Stella March, Ivan Tello, Matt Clark, Srinivas Boggavarapu, Tina Majchrzak, John Farrell, Jeff Blue, Petter Lande, Michael Pokorny, Jie Lei, Mingrui Zhang, Sarah Crane, Nitesh Chawla, Lisa Poole, Jingwei Ke, Wensheng Yao, Jimmy Chao, Richard Collins, Princeton Kokku, Girish Keswani, Haiying Zhang, Robert Banfield, Bhavesh Goswami, Divya Bhadoria, Parag Kanade, Prodip Hore, Ajay Joshi, Larry Shoemaker, Shibendra Pobi, Chintan Thakker,Weijian Cheng, S. Basu, Alireza Chakeri, Benjamin Geiger, Long Dang)
31 Ph.D. (Steve Romaniuk, Amine Bensaid, Robert Velthuizen, Matt Clark, Burak Ozyurt, Mingrui Zhang, Lynn Fletcher-Heath, Nitesh Chawla, Steven Eschrich, Tong Luo, Robert Banfield, Prodip Hore, Yuhua Gu, Larry Shoemaker, Juana Canul-Reich, Jonathon Parker, Mu Zhou, Baishali Chaudhury, Alireza Chakeri, Parham Phoulady, Samuel Hawkins, Rajmadhan Ekambaram, Hamidreza Farhidzadeh, Rahul Paul, Dmitry Cherezov, Saeed Alahmari, Renhao Liu; as co-Major Prof. with Robin Murphy - Jennifer Gage, Cindy Bethel, Jeff Craighead, as co-Major Professor with Xiaoning Qian - Amin Ahmadi Adl) Currently directing 1 M.S. Thesis and 5 Ph.D. Dissertations.

Senior Projects: 7 completed

Undergraduate Research Students: Aneesh Karve, Remy Losaria, Richard Banasiak, Daniel Garcia, Andrew Stella-Vega, Stacey Francis (McNair Fellow), Anthony Hildoer (McNair Fellow), Edwin Miguel, Frederick Mubang

Consulting: IBM, Group Technologies, WCS, Harris, Sunview Software, Italian VQR (research quality asssessment) GEV member, McKnight Foundation.

Service:
1. Departmental/University Committee Duties:

Chairman Colloquium Committee (86-88)
Chairman Unix VAX Committee (86-88)
Undergraduate curriculum committee (86-89)
Equipment committee (86-88,90)
3B Users group committee (86/87)
College computer committee (87/88)
Accreditation committee (87/88)
Master's Exam Committee 86-90
Graduate Admissions Committee (90)

2. Member of Florida State University Institute for Expert Systems and Robotics. (86-90)
3. Univ. Representative to the Florida A.I. Center working group (89-90).
4. Chair Sarasota Faculty Search Committee 1991.
5. College representative to campus committee on computers for teaching and research (CCTR).
6. Graduate Program Coordinator (1991-99)
7. Graduate Dean Search Committee (1993-1994)
8. Faculty Search Committee (1989, 1992-93, 1994-97, 2003-04)

9. University Research Council 1995- (Vice-chair 96-97), (Chair 97-98)
10. Technical support committee (93-96)
11. Graduate Dean Search Committee (96-97)
12. Provost committee for research enhancement (97-98)
13. University Graduate Council (00-01)
14. Associate Dean for Research search committee (COE) (07)
15. Department Chairperson (1/08)-(7/15)
16. Student Success Task Force 09-10
17. Faculty Search Committee 16-17
18. Faculty Search Committee, Chair 17-18
19. Faculty Search Committee, 18-19
20. Chair Faculty Evaluation Committee, 18-19
21. Co-Director Institute for Artificial Intelligence + X, 19-
22. Co-Chair Faculty Search Committee, 20, 21