

LAWRENCE CARIN

Education

Ph. D. in Electrical Engineering, August 1989
University of Maryland
College Park, MD

M.S.E.E., December 1986
University of Maryland, College Park

B.S.E.E., May 1985
University of Maryland, College Park

Employment

Vice President for Research, 8/1/2019 – present
Duke University

Vice Provost for Research, 7/1/2014 – 8/1/2019
Duke University

Chief Scientist, 10/1/2017 – present
Infinia ML (startup)
Durham, NC

Chair, Electrical & Computer Engineering Department, 9/1/2011 – 6/30/2014
Duke University

James L. Meriam Distinguished Professor of Engineering, 7/1/2018 – present
William H. Younger Distinguished Professor of Engineering, 7/1/2003 – 1/1/2014
Duke University

Co-Founder and Director of Technology, 5/1/2005 – 9/1/2014
Signal Innovations Group, Inc. (Acquired by BAE Systems in 2014)
Durham, NC

Professor, 1/1/2001 – present
Department of Electrical Engineering
Duke University
Durham, N.C.

Associate Professor, 8/1/1995 – 12/31/2000
Department of Electrical Engineering
Duke University

Associate Professor, 9/1/1994-7/31/1995
Department of Electrical Engineering
Polytechnic University
Brooklyn, N.Y.

Assistant Professor, 9/1/1989-8/31/1994
Department of Electrical Engineering
Polytechnic University

HONORS

James L. Meriam Distinguished Professor of Engineering (2018-present)
William H. Younger Distinguished Professor of Engineering (2003-2014)
IEEE Fellow (2001)
Distinguished Alumnus, University of Maryland Engineering School (2014)
Research Award, Duke University School of Engineering (2002)
Nominated for Duke University Alumni Distinguished Undergraduate Teaching Award (2001-2002)
Member, White House Advisory Panel on the Future of Landmine Research (2002)
Best Paper, OSA Computational Optical Sensing and Imaging, 2013
2000 Applied High-Power Electromagnetics Paper of the Year (conferred by SUMMA Foundation)
DoD SERDP Cleanup Project of the Year (2000 and 2005)
National Science Foundation Research Initiation Award (1992)
Invited Guest Editor, *IEEE Trans. Geoscience Remote Sensing*, June 2001 (on subsurface sensing)
Invited Guest Editor, *Radio Science*, 2003 (on landmine sensing)
Associate Editor: *IEEE Trans. Signal Processing*, *J. Machine Learning Research*, *SIAM J. Imaging Science*, *IEEE Trans. Antennas and Propagation*
PI, Multidisciplinary University Research Initiative (MURI) on landmine sensing, 1996-2001
PI, DARPA MURI on multi-modality inverse scattering, 2002-2007
Full Member, URSI Commission B
Tau Beta Pi and Eta Kappa Nu

REFEREED PUBLICATIONS

- [1] L. Carin, K. J. Webb, and S. Weinreb, "Matched windows in circular waveguide," *IEEE Trans. Microwave Theory Tech.*, vol. MTT-36, pp. 1359-1362, Sept. 1988.
- [2] L. Carin and K. J. Webb, "Characteristic impedance of multi-level, multiconductor hybrid mode microstrip" *IEEE Trans. on Magnetics.*, vol. 25, pp. 2947-2949, July 1989.
- [3] L. Carin and K. J. Webb, "An equivalent circuit model for terminated hybrid-mode

- multiconductor transmission lines," *IEEE Trans. Microwave Theory Tech.*, vol. MTT-37, pp. 1784-1793, Nov. 1989.
- [3] L. Carin and K. J. Webb, "Pulse propagation on multi-layered circuit level interconnects," *J. of E. M. Waves and Appl.*, vol. 4, pp. 229-245, Mar. 1990.
- [4] G. W. Slade, L. Carin, Q. Xu, S. E. Borchardt and K. J. Webb, "A study of fin-line leaky-wave antennas," *IEEE Trans. Antennas and Prop.*, vol. AP-38, pp. 411-413, Mar. 1990.
- [5] L. Carin and K. J. Webb, "Isolation effects in single and dual plane VLSI interconnects" *IEEE Trans. Microwave Theory Tech.*, vol. MTT-38, Apr. 1990.
- [6] L. Carin, "Efficient analysis of high-frequency two-dimensional effects in multiconductor printed interconnects" *IEEE Trans. Microwave Theory Tech.*, Jan. 1992.
- [7] L. Carin and N. K. Das, "Leaky-waves on broadside-coupled microstrip," *IEEE Trans. Microwave Theory Tech.*, Jan. 1992.
- [8] L. Carin and L. B. Felsen, "Design-oriented parametrization of truncated periodic gratings," *IEEE Microwave and Guided Wave Letts.*, vol. 2, pp. 367-369, Sept. 1992.
- [9] L. Carin and L. B. Felsen, "Efficient numerical-analytic analysis of ultra-wideband plane wave scattering from a collection of strips," *Int. J. Num. Model.*, vol. 6, pp. 3-17, Jan. 1993.
- [10] L. Carin and K. Agi, "Ultra-wideband transient scattering measurements using optoelectronically switched antennas," *IEEE Microwave Theory Tech.*, vol. 41, pp. 250-254, Feb. 1993.
- [11] D. Kralj and L. Carin, "Short-pulse scattering measurements from dielectric spheres using optoelectronically switched antennas," *Appl. Phys. Lett.*, vol. 62, pp. 1301-1303, Mar. 15, 1993.
- [12] L. Carin and L. B. Felsen, "Time-harmonic and transient scattering by finite periodic flat strip arrays: Hybrid (Ray)-(Floquet Mode)-(MOM) algorithm and its GTD interpretation," *IEEE Trans. Antennas Propagat.*, vol. 41, pp. 412-421, April 1993.
- [13] L. Carin, L. B. Felsen, and M. McClure, "Time-domain design-oriented parametrization of truncated periodic gratings," *IEEE Microwave and Guided Wave Letts.*, vol. 3, pp. 110-112, April 1993.
- [14] L. Carin, K. Agi, K. M. Leung, B. A. Garetz, "Characterization of layered dielectrics with short electromagnetic pulses," *IEEE J. Quantum Elect.*, pp. 2141-2144, July 1993.
- [15] L. Carin, D. R. Kralj, M. R. Melloch, and J. M. Woodall, "Characterization of planar antennas fabricated on GaAs epilayers containing As cluster for picosecond short-pulse applications," *IEEE Microwave and Guided Wave Letts.*, Sept. 1993.

- [16] L.B. Felsen and L. Carin, "Wave-oriented processing of scattering data," *Elect. Letters*, vol. 29, pp. 1930-1932, Oct. 28, 1993
- [17] L. Carin, L.B. Felsen, S.U. Pillai, D. Kralj, and W.C. Lee, "Dispersive modes in the time domain: analysis and time-frequency representation," *IEEE Microwave and Guided Wave Letters*, vol. 4., pp. 23-25, Jan. 1994.
- [18] L.B. Felsen and L. Carin, "Frequency and time domain bragg-modulated ray acoustics for truncated periodic arrays," *J. Acoust. Soc. Am.*, vol. 95, pp. 638-645, Feb. 1994.
- [19] L. B. Felsen and L. Carin, "Diffraction theory of frequency- and time-domain scattering by weakly aperiodic truncated thin-wire gratings," *J. Optical Soc. America A*, vol. 11, pp. 1291-1306, April 1994.
- [20] D. Kralj and L. Carin, "Ultra-wideband dispersion measurements of water in reflection and transmission," *IEEE Trans. Microwave Theory Tech.*, vol. 42, pp. 553-557, April 1994.
- [21] A. Rahman, D.R. Kralj, and L. Carin, "Photoconductively switched antennas for measuring target resonances," *Appl. Phys. Lett.*, vol. 64, pp. 2178-2180, April 1994.
- [22] L. Carin and L.B. Felsen, "Wave-Oriented Data Processing for Frequency and Time Domain Scattering by Nonuniform Truncated Array," *IEEE Antennas and Propagation Magazine*, vol. 36, pp. 29-43, June 1994.
- [23] A. Sullivan and L. Carin, "Scattering by 2-D strips using an asymptotic hybrid (method of moments)-(physical optics) technique," *Microwave and Optical Technology Letts.*, Aug. 20, 1994.
- [24] M. McClure, D.R. Kralj, T.-T. Hsu, L. Carin and L. B. Felsen, "Frequency domain wave-oriented data processing for scattering by nonuniform truncated gratings" *J. Optical Soc. America A*, vol. 11, pp. 2675-2684, Oct. 1994.
- [25] D.R. Kralj, M. McClure, L. Carin, and L.B. Felsen, "Time domain wave-oriented data processing for scattering by nonuniform truncated gratings," *J. Optical Soc. America A*, vol. 11, pp. 2685-2694, Oct. 1994.
- [26] Y. Qiu, K.M. Leung, L. Carin and D. Kralj, "Dispersion curves and transmission spectra of a two-dimensional photonic bandgap crystal: theory and experiment," *J. Appl. Phys.*, April 15, 1995.
- [27] J. Cina and L. Carin, "Mode conversion and leaky-wave excitation at open-end coupled-microstrip discontinuities," *IEEE Trans. Microwave Theory Tech.*, vol. 43, pp. 2066-2072, Sept. 1995.
- [28] D. Kralj, L. Mei, T.-T. Hsu and L. Carin, "Short-Pulse Propagation in a Hollow Waveguide: Analysis, Optoelectronic Measurement, and Signal Processing," *IEEE Trans. Microwave Theory*

Tech., vol. 43, pp. 2144-2150, Sept. 1995

[29] S. Vitebskiy and L. Carin, "Short-pulse plane-wave scattering from and the resonances of a dipole buried inside a lossy, dispersive half space," *IEEE Trans. Antennas Prop.*, vol. 43, pp. 1303-1312, Nov. 1995.

[30] L. Carin, L.B. Felsen, and T.-T. Hsu, "Observable-based parametrization of time-harmonic fields excited by a truncated array of nonuniformly distributed phased line sources on an infinite dielectric slab," *IEEE Trans. Antennas Prop.*, vol. 44, pp. 56-66, Jan. 1996.

[31] T.-T. Hsu and L. Carin, "FDTD analysis of plane-wave scattering from microwave devices on an infinite dielectric slab," *IEEE Microwave and Guided Wave Letts.*, vol. 6, pp. 16-18, Jan. 1996.

[32] S. Vitebskiy and L. Carin, "Short-pulse plane wave scattering from a buried perfectly conducting body of revolution," *IEEE Trans. Antennas Prop.*, vol. 44, pp. 112-120, Feb. 1996.

[33] T.-T. Hsu, L.B. Felsen, and L. Carin, "Wave-oriented processing of scattered field data from a plane-wave-excited finite array of filaments on an infinite dielectric slab," *IEEE Trans. Antennas Prop.*, vol. 44, pp. 352-360, Mar. 1996.

[34] S.W. McKnight, L. Carin, C. Vittoria, S.F. Wahid, K. Agi, and D. Kralj, "Picosecond-pulse and millimeter-wave spectroscopy of barium ferrite," *IEEE Trans. Mag.*, vol. 32, pp. 372-376, Mar. 1996.

[35] S. Vitebskiy and L. Carin, "Late-time resonant frequencies of buried bodies of revolution," *IEEE Trans. Antennas Prop.*, vol. 44, pp. 1575-1583, Dec. 1996.

[36] L. Carin, L.B. Felsen, D.R. Kralj, H.S. Oh, W.C. Lee, and S.U. Pillai, "Wave-Oriented Data Processing of Dispersive Time-Domain Scattering Data," *IEEE Trans. Antennas Prop.*, vol. 45, pp. 592-600, April 1997.

[37] M. McClure, R. C. Qiu, and L. Carin, "On the superresolution identification of wavefronts from swept-frequency scattering data," *IEEE Trans. Antennas Prop.*, , vol. AP-45, pp. 631-641, April 1997.

[38] S. Vitebskiy, L. Carin, M. Ressler and F. Le, "Ultra-wideband, short-pulse ground-penetrating radar: theory and measurement," *IEEE Trans. Geoscience and Remote Sensing*, vol. 35, pp. 762-772, May 1997.

[39] D. Kralj and L. Carin, "Time-domain characteristics of leaky-wave devices," *IEEE Microwave and Guided Wave Letts.*, vol. 7, pp. 124-126, May 1997.

[40] M. McClure and L. Carin, "Matched pursuits with a wave-based dictionary," *IEEE Trans. Signal Proc.*, vol. 45, pp. 2912-2927, Dec. 1997.

[41] T. Dogaru and L. Carin, "Time-Domain Sensing of Targets Buried Under a Rough Air-Ground

Interface," *IEEE Trans. Antennas Prop.*, vol. 46, pp. 360-372, Mar. 1998.

[42] L. Carin, G.W. Slade, and K.J. Webb, "Mode coupling and leakage effects in finite size printed interconnects," *IEEE Trans. Microwave Theory and Tech.*, vol. 46, pp. 450-457, May 1998.

[43] B. Rao and L. Carin, "A hybrid (parabolic equation)-(Gaussian beam) algorithm for wave propagation through large inhomogeneous regions," *IEEE Trans. Antennas Prop.*, vol. 46, pp. 700-709, May 1998.

[44] M. McClure and L. Carin, "Wave-based matched-pursuits detection of submerged elastic targets," *J. Acoustical Soc. Am.*, vol. 104, pp. 937-946, Aug. 1998.

[45] L. Carin, R. Kapoor, C.E. Baum, "Polarimetric SAR imaging of buried landmines," *IEEE Trans. Geoscience and Remote Sensing*, vol. 36, pp. 1985-1988, Nov. 1998.

[46] D. Wong and L. Carin, "Analysis and processing of ultra-wideband SAR imagery for buried landmine detection," *IEEE Trans. Antennas Propagat.*, vol. 46, pp. 1747-1748, Nov. 1998.

[47] A. Sullivan and L. Carin, "Scattering from complex bodies using a combined direct and iterative technique," *IEEE Trans. Antennas Prop.*, vol. 47, pp. 33-39, Jan. 1999.

[48] N. Geng, C.E. Baum, and L. Carin, "On the low-frequency natural response of conducting and permeable targets," *IEEE Trans. Geoscience and Remote Sensing*, vol. 37, pp. 347-359, Jan. 1999.

[49] L. Carin, N. Geng, M. McClure, J. Sichina, and L. Nguyen, "Ultra-wideband synthetic aperture radar for mine field detection," *IEEE Antennas and Propagation Magazine* (invited), vol. 41, pp. 18-33, Feb. 1999.

[50] L. Collins, P. Yao, and L. Carin, "A Bayesian theoretic algorithm for detection of land mines," *IEEE Trans. Geoscience and Remote Sensing*, vol. 37, pp. 811-819, Mar. 1999.

[51] N. Geng and L. Carin, "Ultrawideband, short-pulse scattering from a dielectric body of revolution buried in a lossy, dispersive layered medium," *IEEE Trans. Antennas Propagat.*, vol. 47, pp. 610-619, April 1999.

[52] A. Sullivan and L. Carin, "A hybrid technique combining the method of moments with asymptotic techniques," *Microwave and Optical Tech. Letts.*, April 20, 1999.

[53] N. Geng, A. Sullivan and L. Carin, "Fast multipole method for scattering from a arbitrary PEC target above or below a lossy half space," *Microwave and Optical Tech. Letts.*, June 20, 1999.

[54] P. Runkle, P. Bharadwaj, and L. Carin, "Hidden Markov model multi-aspect target classification," *IEEE Trans. Signal Proc.*, vol. 47, pp. 2035-2040, July 1999.

[55] N. Geng and L. Carin, "Short-pulse electromagnetic scattering from arbitrarily oriented

subsurface ordnance,” *IEEE Trans. Geoscience and Remote Sensing*, vol. 37, pp. 2111-2113, July 1999.

[56] N. Geng, D. Jackson, and L. Carin, “On the resonances of dielectric bodies of revolution buried in a lossy, dispersive layered medium,” *IEEE Trans. Antennas Propagat.*, vo. 47, pp. 1305-1313, Aug. 1999.

[57] P. Runkle, L. Carin, L. Couchman, T. Yoder, and J. Bucaro, “Multi-aspect identification of submerged elastic targets via wave-based matching pursuits and hidden Markov models,” *J. Acoustical Soc. Am.*, vol. 106, pp. 605-616, Aug. 1999.

[58] N. Geng, M. Ressler, and L. Carin, “Wideband VHF scattering from a trihedral reflector situated above a lossy dispersive halfspace,” *IEEE Trans. Geoscience and Remote Sensing*, vol. 37, pp. 2609-2617, Sept. 1999.

[59] B. Rao and L. Carin, “Beam-tracing-based inverse scattering for general aperture antennas,” *J. Optical Soc. Am. A*, vol. 16, pp. 2219-2231, Sept. 1999.

[60] P.K. Bharadwaj, P.R. Runkle, and L. Carin, “Target identification with wave-based matching pursuits and hidden Markov models,” *IEEE Trans. Antennas Propagation*, vol. 47, pp. 1543-1554, Oct. 1999.

[61] N. Dasgupta, N. Geng, T. Dogaru and L. Carin, “On the extended-Born technique for scattering from buried dielectric targets,” *IEEE Trans. Antennas Propagation*, vol. 47, pp. 1739-1742, Nov. 1999.

[62] P. Runkle, L. Carin, L. Couchman, T.J. Yoder, and J.A. Bucaro, “Multi-aspect target identification with wave-based matching pursuits and continuous hidden Markov models *IEEE Trans. Pattern Analysis and Machine Intelligence*, vol. 21, pp. 1371-1378, Dec. 1999.

[63] B. Rao and L. Carin, “Hybrid inverse scattering from electrically large regions,” *Radio Science*, vol. 35, pp. 315-329, Mar.-Apr. 2000

[64] J. He, T. Yu, N. Geng and L. Carin, “Method-of-moments analysis of electromagnetic scattering from a general three-dimensional dielectric target embedded in a multi-layered medium,” *Radio Science*, vol. 35, pp. 305-313, Mar.-Apr. 2000.

[65] T. Yu and L. Carin, “Extended-Born method for the modeling of buried voids,” *IEEE Trans. Geoscience and Remote Sensing*, vol. 38, pp. 1320-1327, May 2000.

[66] P. Gao, L.M. Collins, P. Garber, N. Geng and L. Carin, “Classification of landmine-like metal targets using wideband electromagnetic induction”, *IEEE Trans. Geoscience and Remote Sensing*, vol. 38, pp. 1352-1361, May 2000.

[67] N. Geng, A. Sullivan and L. Carin, “Multi-level fast-multipole algorithm for scattering from

conducting targets above or embedded in a lossy half space,” *IEEE Trans. Geoscience Remote Sensing*, vol. 38, pp. 1567-1579, July 2000.

[68] P. Runkle, L. Nguyen, J. McClellan and L. Carin, “Multi-aspect target detection for SAR imagery using hidden Markov models,” *IEEE Trans. Geoscience and Remote Sensing*, vol. 39, pp. 46-55, Jan. 2001.

[69] T. Dogaru and L. Carin, “Multiresolution time-domain analysis of scattering from a rough dielectric surface,” *Radio Science*, vol. 35, pp. 1279-1292, Nov.-Dec. 2000.

[70] N. Geng, A. Sullivan and L. Carin, “Fast multipole method analysis of scattering from a three-dimensional target in a half-space environment,” *IEEE Trans. Antennas Propagat.*, vol. 49, pp. 740-748, May 2001.

[71] T. Dogaru and L. Carin, “Application of multiresolution time-domain schemes to two-dimensional electromagnetic scattering problems,” *IEEE Trans. Antennas Propagat.*, vol. 50 pp. 774-784, June 2002.

[72] N. Dasgupta, P. Runkle, L. Couchman and L. Carin, “Dual hidden Markov model for characterizing wavelet coefficients from multi-aspect scattering data,” *Signal Processing*, vol. 81 pp. 1303-1316, June 2001.

[73] A. Sullivan, R. Damarla, N. Geng, Y. Dong and L. Carin, “Ultra-wideband synthetic aperture radar for detection of unexploded ordnance: modeling and measurements,” *IEEE Trans. Antennas Propagation*, vol. 48, pp. 1306-1315, Sept. 2000.

[74] P. Bharadwaj, P. Runkle, L. Carin, J.A. Berrie and J.A. Hughes, “Multi-aspect classification of airborne targets via physics-based hidden Markov models and matching pursuits,” *IEEE Trans. Aerospace and Electronic Systems*, vol. 37, pp. 595-606, April 2001.

[75] J. He, N. Geng, L. Nguyen and L. Carin, “Rigorous modeling of ultra-wideband VHF scattering from tree trunks over flat and sloped terrain,” *IEEE Trans. Geoscience and Remote Sensing*, vol. 39 pp. 2182-2193, Oct. 2001.

[76] E. Jones, P. Runkle, N. Dasgupta, L. Couchman and L. Carin, “Genetic algorithm wavelet design for signal classification,” *IEEE Trans. Pattern Analysis and Machine Intelligence*, vol. 23, pp. 890-895, Aug. 2001.

[77] T. Dogaru, L. Collins, and L. Carin, “Optimal detection of a deterministic target buried under a randomly rough interface,” *IEEE Trans. Antennas Propagat.*, vol. 49, pp. 313-326, Mar. 2001.

[78] L. Carin, H. Yu, Y. Dalichaouch, A.R. Perry, P.V. Czipott, C.E. Baum, “On the wideband EMI response of a rotationally symmetric permeable and conducting target”, *IEEE Transactions of Geoscience and Remote Sensing*, Vol 39, pp. 1206-1213, June 2001.

- [79] T. Dogaru and L. Carin, "Multiresolution Time-Domain Using Biorthogonal Wavelets," *IEEE Transactions on Microwave Theory and Techniques*, vol. 49, pp. 902-912, May 2001.
- [80] Y. Dong, P. Runkle, L. Carin, R. Damarla, A. Sullivan, M. Ressler and J. Sichina, "Multi-Aspect Detection of Surface and Shallow-Buried Unexploded Ordnance via Ultra-Wideband Synthetic Aperture Radar," *IEEE Trans. on Geoscience and Remote Sensing*, vol. 39, pp. 1259-1270, June 2001.
- [81] Y. Xie, J. He, A. Sullivan and L. Carin, "A simple preconditioner for electric-field integral equations," *Microwave and Opt. Tech. Letts.*, vol. 30, pp. 51-54, July 5 2001.
- [82] J. He, A. Sullivan and L. Carin, "Multi-level fast multipole algorithm for general dielectric targets in the presence of a lossy half space," *Radio Science*, vol. 36, pp. 1271-1285, Nov.-Dec. 2001.
- [83] Y. Yu, T. Yu and L. Carin, "Three-dimensional inverse scattering of a dielectric target embedded in a lossy half space," *IEEE Trans. Geoscience and Remote Sensing*, vol. 42, pp. 957-973, May 2004
- [84] X. Zhu and L. Carin, "Multi-resolution time-domain analysis of plane-wave scattering from general three-dimensional surface and subsurface dielectric targets," *IEEE Trans. Antennas Propagat.*, vol. 49, pp. 1568-1578, Nov. 2001.
- [85] J. He, A. Sullivan and L. Carin, "Multi-level fast multipole algorithm for three-dimensional dielectric targets in the vicinity of a lossy half space", *Microwave and Optical Tech. Letters*, vol. 29 pp. 100-104, April 20, 2001.
- [86] Z. Liu and L. Carin, "Efficient evaluation of the half-space Green's function for fast-multipole scattering models," *Microwave and Optical Tech. Letters*, vol. 29, pp. 388-392, June 20, 2001.
- [87] L. Carin, N. Geng, M. McClure, Y. Dong, Z. Liu, J. He, J. Sichina, M. Ressler, L. Nguyen and A. Sullivan, "Wide-Area Detection of Land Mines and Unexploded Ordnance," *Inverse Problems*, vol. 18, pp. 575-609, June 2002.
- [88] T. Dogaru and L. Carin, "Time-domain sensing of targets buried under a Gaussian, exponential and fractal rough surface," *IEEE Trans. Geoscience Remote Sensing*, vol. 39, pp. 1807-1819, Aug. 2001
- [89] X. Liao, P. Runkle and L. Carin, "Identification of Ground Targets From Sequential High-Range-Resolution Radar Signatures," *IEEE Trans. Aerospace and Electronic Systems*, vol. 38, pp. 1230-1242, Oct. 2002.
- [90] N. Dasgupta, P. Runkle, L. Carin, L. Couchman, T. Yoder, J. Bucaro, and G. Dobeck, "Class-based target identification with multi-aspect scattering data," *IEEE J. Oceanic Eng.*, vol. 28, pp. 271-282, April 2003.
- [91] T. Dogaru and L. Carin, "Scattering analysis by the multiresolution time-domain method using

compactly supported wavelet systems,” *IEEE Trans. Microwave Theory Tech.*, vol. 50, pp. 1752-1760, July 2002.

[92] L. Carin, J. Sichina, J.H. Harvey, “Microwave underground propagation and detection,” *IEEE Trans. Microwave Theory Tech.*, vol. 50, pp. 945-952, March 2002.

[93] X. Zhu and L. Carin, “Multi-resolution time-domain analysis of a ground-penetrating radar system,” accepted for publication in *IEEE Trans. Antennas Propagat.*

[94] Z. Liu, J. He, Y. Xie, A. Sullivan and L. Carin, “Multi-level fast multipole algorithm for general targets on a half-space interface,” *IEEE Trans. Antennas Propagat.*, vol. 50, pp. 1838-1849, Dec. 2002.

[95] P. Bharadwaj and L. Carin, “Infrared-Image Classification Using Hidden Markov Trees,” *IEEE Trans. Pattern Anal. Machine Intell.*, vol. 24, pp. 1394-1398, October 2002.

[96] X. Zhu, T. Dogaru, and L. Carin, “Three-dimensional biorthogonal multi-resolution time-domain method and its application to electromagnetic scattering problems,” *IEEE Trans. Antennas Propagat.*, vol. 51, pp. 1085-1092, May 2003.

[97] L. Li, J. He, Z. Liu and L. Carin, “MLFMA analysis of scattering from multiple targets in the presence of a half space,” *IEEE Trans. Antennas Propagat.*, vol. 51, pp. 810-819, April 2003.

[98] Y. Dong and L. Carin, “Rate-distortion analysis of pose estimation via multi-aspect scattering data”, *IEEE Trans. Pattern Analysis & Machine Intelligence*, vol. 25, pp. 872-883, Jul. 2003.

[99] B. Krishnapuram, J. Sichina and L. Carin, “Physics-based detection of targets in SAR imagery using support vector machines,” *IEEE Sensors J.*, Vol. 3, pp. 147 – 157, April 2003.

[100] N. Dasgupta, S. Lin and L. Carin, “Sequential modeling for identifying CpG islands in human genome,” *IEEE Sig. Proc. Letts.*, Vol. 9, pp. 407 – 409, Dec. 2002.

[101] Z. Liu, R.J. Adams, and L. Carin, “New MLFMA formulation for closed PEC targets in the vicinity of a half space,” *IEEE Trans. Antennas Propagat.*, vol. 51, pp. 2822-2829, Oct. 2003.

[102] Z. Liu and L. Carin, “MLFMA-based quasi-direct analysis of scattering from electrically large targets,” *IEEE Trans. Antennas Propagat.*, vol. 51, pp. 1877-1882, Aug. 2003.

[103] Y. Dong and L. Carin, “Quantization of multi-aspect scattering data: Target classification and pose estimation,” *IEEE Trans. Signal Processing*, vol. 51, pp. 3105-3114, Dec. 2003

- [104] H. Liu, P. Runkle, L. Carin, T. Yoder, T. Giddings, L. Couchman and J. Bucaro, "Wideband classification of target in a water channel," *J. Acoustical Soc. Of Am.*, vol. 115, pp. 1185-1197, March 2004
- [105] X. Zhu, T. Dogaru, and L. Carin, "Parallel implementation of the biorthogonal MRTD method," *J. Opt. Soc. Am.*, vol. 20, pp. 844-855, May 2003.
- [106] Y. Zhang, L. Collins, H. Yu, C. Baum and L. Carin, "Sensing of unexploded ordnance with magnetometer and induction data: Theory and signal processing," *IEEE Trans. Geoscience Remote Sensing*, vol. 41, pp. 1005-1015, May 2003.
- [107] L. Li, Z. Liu, X. Dong, J. Thompson and L. Carin, "Scalable multi-level fast multipole method for multiple targets in the vicinity of a half space," *IEEE Trans. Geoscience Remote Sensing*, vol. 41 pp. 791-802, Apr. 2003.
- [108] L. Carin, T. Yoder, H. Liu, L. Couchman, B. Houston and J. Bucaro, "Wideband time-reversal imaging for classification of an elastic target in an acoustic waveguide," *J. Acoustical Soc. Am.*, vol.115, pp. 259-268, Jan. 2004.
- [109] Y. Dong, S. Chang and L. Carin, "Rate-distortion bound for joint compression and classification with application to multi-aspect sensing," *IEEE Sensor J.*, vol. 5, pp. 481-492, June 2005.
- [110] X. Zhu, T. Dogaru and L. Carin, "Analysis of the CDF biorthogonal MRTD method with application to PEC targets," *IEEE Trans. Microwave Theory Tech.*, vol. 51, pp. 2015-2022, Sept. 2003.
- [111] N. Kovvali and L. Carin, "Analysis of Wideband Forward-Looking Synthetic-Aperture Radar for Sensing Land Mines," *Radio Science*, vol. 39, July 2004.
- [112] Y. Zhang, L. Collins and L. Carin, "Unexploded ordnance detection using Bayesian physics-based data fusion", *Integrated Computer-Aided Engineering*, Vol.10, pp. 231-247, July 2003.
- [113] L. Collins, Y. Zhang, J. Li, H. Wang, L. Carin, S. Hart, S. Rose-Pehrsson, H. Nelson, and J. McDonald, "A Comparison of the performance of statistical and fuzzy algorithms for unexploded ordnance detection", *IEEE Trans. Fuzzy Systems*, vol. 9, pp. 17-30, Feb. 2001.
- [114] X. Dong, Z. Liu and L. Carin, "Volume and surface MLFMA formulations for dielectric targets in the presence of a half space," *Radio Science*, vol. 39, Mar. 2004.
- [115] L. Li and L. Carin, "Multi-level fast multipole calibration of ray models with application to wireless propagation," *IEEE Trans. Antennas Propagat.*, vol. 52, pp. 2794-2799, Oct. 2004.
- [116] X. Liao and L. Carin, "Application of the theory of optimal experiments to adaptive

electromagnetic-induction sensing of buried targets,” *IEEE Trans. Pattern Analysis Machine Intelligence*, Vol. 26, pp. 961-972, Aug. 2004.

[117] X. Zhu and L. Carin, “Application of the biorthogonal multi-resolution time domain method to the analysis of elastic-wave interactions with buried targets,” *IEEE Trans. Geoscience Remote Sensing*, vol. 42, pp. 1502-1511, July 2004.

[118] B. Krishnapuram, L. Carin, A. Hartemink and M. Figueiredo, “An EM algorithm for joint feature selection and classifier design,” *IEEE Trans. Pattern Analysis Mach. Intell.*, vol. 22, pp. 1105-1111, Sept. 2004.

[119] S. Ji, X. Liao, and L. Carin, “Adaptive Multi-Aspect Target Classification via Hidden Markov Models and the Theory of Optimal Experiments,” *IEEE Sensor J.*, vol. 5, pp. 1035-1042, Oct. 2005.

[120] B. Krishnapuram, L. Carin, and A. Hartemink, “A comprehensive comparison of sparse Bayesian methods for disease diagnosis based on gene expression,” *J. Computational Biology*, vol. 11, pp. 227-242, 2004.

[121] E. Dura, Y. Zhang, X. Liao, G. Dobeck and L. Carin, “Active Learning for Detection of Mine-Like Objects in Side-Scan Sonar Imagery,” *IEEE J. Oceanic Engineering*, vol. 30, pp. 360-371, April 2005.

[122] Y. Zhang, X. Liao and L. Carin, “Detection of buried targets via active selection of labeled data: application to sensing subsurface UXO,” *IEEE Trans. Geosc. Remote Sensing*, vol. 42, pp. 2535-2543, Nov. 2004.

[123] Y. Yu, B. Krishnapuram and L. Carin, “Inverse scattering with sparse Bayesian vector regression,” *Inverse Problems*, vol. 20, S217-S231, Dec. 2004.

[124] N. Dasgupta and L. Carin, “Time-Reversal Imaging for Classification of a Submerged Elastic Target via Gibbs Sampling and the Relevance Vector Machine,” *J. Acoustical Soc. Am.*, vol. 117, pp. 1999-2011, Part 1 April 2005.

[125] B. Krishnapuram, L. Carin, M.A.T. Figueiredo and A. Hartemink, “Learning sparse Bayesian classifiers: multi-class formulation, fast algorithms and generalization bounds,” *IEEE Trans. Pattern Analysis Machine Intelligence*, vol. 27, pp. 957-968, June 2005.

[126] M. Nishimoto, X. Liao, and L. Carin, “Target identification from multi-aspect high range-resolution radar signatures using a hidden Markov model” *IEICE Transactions on Electronics*, Vol. E87C, pp. 1706-1714, Oct. 2004 (Japan)

[127] S. Chang and L. Carin, “A modified SPIHT algorithm for image coding with a joint MSE and classification distortion measure,” *IEEE Trans. Image Processing*, vol. 15, pp. 713-725, March 2006.

[128] Z. Zhao, L. Li, J. Smith and L. Carin, "Analysis of Scattering from Very Large Three-

Dimensional Rough Surfaces Using MLFMM and Ray-Based Analyses,” *IEEE Antennas Propagat. Mag.*, vol. 47, pp. 20-30, June 2005.

[129] Y. Chen, W.T. Joines, M. Chai, Q.H. Liu and L. Carin, “Analysis, design and construction of a broadband balun for coaxial-to-planar transmission line feed,” *IEEE Microwave and Wireless Components Letters*, vol. 44, pp. 501-504, March 20, 2005.

[130] Z. Zhao, C.-H. Ahn and L. Carin, “Non-Uniform Frequency Sampling with Active Learning: Application to Wideband Frequency-Domain Modeling and Design,” *IEEE Trans. Antennas Propagat.*, vol. 53, pp. 3049-3057, Sept. 2005.

[131] N. Dasgupta and L. Carin, “Texture analysis with semi-supervised and variational hidden Markov trees,” *IEEE Trans. Signal Processing*, vol. 54, pp. 2352-2356, June 2006.

[132] B. Krishnapuram, L. Carin and A. Hartemink, “Gene expression analysis: Joint feature selection and classifier design,” in *Kernel Methods in Computational Biology* (Chapter 14), Edited by B. Scholkopf, K. Tsuda and J.-P. Vert, MIT Press, 2004.

[133] X. Liao, and L. Carin, “Radial basis function for multi-task learning,” *Neural and Information Processing Systems* (NIPS), 2005.

[134] W. Lin, N. Kovvali, and L. Carin, “Ridgelet-based implementation of multi-resolution time domain,” *IEEE Trans. Antennas Propagat.*, vol. 53, pp. 2688-2699, Part 2 Aug. 2005.

[135] D. Liu, G. Kang, L. Li, Y. Chen, S. Vasudevan, W. Joines, Q. Liu, J. Krolik and L. Carin, “Electromagnetic time-reversal imaging of a target in a cluttered environment,” *IEEE Trans. Antennas Propagat.*, vol. 53, pp. 3058-3066, Sept. 2005.

[136] S. Ji, B. Krishnapuram and L. Carin, “Variational Bayes for continuous hidden Markov models and its application to active learning”, *IEEE Trans. Pattern Analysis Mach. Intell.*, vol. 28, pp. 522-532, April 2006.

[137] S. Ji and L. Carin, “Cost-sensitive feature acquisition and classification,” *Pattern Recognition*, vol. 40, pp. 1474-1485, 2007.

[138] N. Kovvali, W. Lin and L. Carin, “Order of accuracy analysis of multiresolution time-domain using Daubechies bases”, *Microwave and Optical Tech. Wave Letters*, vol. 45, pp. 290-293, May 20, 2005.

[139] N. Kovvali, W. Lin and L. Carin, “Direct algorithm for computation of derivatives of the Daubechies basis functions,” *Applied Mathematics and Computation*, vol. 170, pp. 1006-1013, Nov. 15, 2005.

- [140] B. Krishnapuram, D. Williams, Y. Xu, A. Hartemink, L. Carin and M. Figueiredo, "On semi-supervised classification," *Advances in Neural and Information Processing Systems*, NIPS 16, MIT Press, 2004.
- [141] N. Kovvali, W. Lin, Z. Zhao, L. Couchman and L. Carin, "Rapid prolate pseudospectral differentiation and interpolation with the fast multiple method," *SIAM J. Scientific Computing*, vol. 28, pp. 485-497, 2006.
- [142] D. Williams, X. Liao, B. Krishnapuram, Y. Xue and L. Carin, "On classification with incomplete data," *IEEE Trans. Pattern Analysis Machine Intelligence*, vol. 29, pp. 427-436, March 2007.
- [143] N. Kovvali, W. Lin and L. Carin, "Pseudospectral method based on prolate spheroidal wave functions for frequency-domain electromagnetic simulations," *IEEE Trans. Antennas Propagat.*, vol. 53, pp. 3990-4000, Dec. 2005.
- [144] D. Williams, X. Liao, Y. Xue and L. Carin, "Logistic regression classification with incomplete data," *International Conf. Machine Learning*, 2005.
- [145] X. Liao, Y. Xue and L. Carin, "Logistic regression with an auxiliary data source," *International Conf. Machine Learning*, 2005.
- [146] D. Liu, S. Vasudevan, J. Krolik, G. Bal and L. Carin, "Electromagnetic time-reversal imaging in changing media: experiment and analysis," *IEEE Trans. Antennas Propagation*, vol. 55, pp. 344-354, Feb. 2007.
- [147] N. Kovvali, W. Lin and L. Carin, "Image technique for multiresolution time-domain using non-symmetric basis functions," *Microwave and Optical Tech. Wave Letters*, vol. 47, pp. 44-47, Oct. 5, 2005.
- [148] Y. Yu and L. Carin, "Three-dimensional Bayesian inversion with application to subsurface sensing," *IEEE Trans. Geoscience Remote Sensing*, vol. 45, pp. 1258-1270 Part 1 May 2007.
- [149] W. Lin, N. Kovvali and L. Carin, "Pseudospectral method based on Prolate spheroidal wave functions for semiconductor nanodevice simulation," *Computer Physics Comm.*, vol. 175, pp. 78-85, July 15, 2006.
- [150] S. Ji, R. Parr and L. Carin, "Non-myopic multi-aspect sensing with partially observable Markov decision processes," *IEEE Trans. Signal Proc.*, vol. 55, pp. 2720-2730, Part 1 June 2007.
- [151] Y. Chen, Q. Liu, W. Joines and L. Carin, "Double-sided exponentially tapered GPR antenna and its transmission line feed structure," *IEEE Trans. Antennas Propagation*, vol. 54, pp. 2615-2623, Sept. 2006.

- [152] X. Liao, H. Li and L. Carin, "Region-based value iteration for partially observable decision processes," *Int. Conf. Machine Learning (ICML)*, 2006.
- [153] H. Li, X. Liao and L. Carin, "Incremental least squares policy iteration for POMDPs," *Am. Assoc. Artificial Intelligence Conf.*, 2006.
- [154] Y. Xue, X. Liao, L. Carin and B. Krishnapuram, "Multi-task learning for classification with Dirichlet priors," *J. Mach. Learning Res.*, vol. 8, pp. 35-63, Jan. 2007.
- [155] Z. Zhao, N. Kovvali, W. Lin, C.-H. Ahn and L. Carin, "Volumetric fast multipole method for modeling Schrodinger's equation," *J. Comp. Phys.*, vol. 224, pp. 941-955, June 10, 2007.
- [156] S. Ji, L. Watson and L. Carin, "Semi-supervised learning of hidden Markov models via a homotopy method," *IEEE Trans. Pattern Analysis Machine Intell.*, vol. 31, pp. 275-287 Feb. 2009.
- [157] L. Carin, "On the relationship between compressive sensing and random sensor arrays", *IEEE Antennas & Propagation Magazine*, Oct. 2009.
- [158] L. He, S. Ji, W. Scott, Jr., and L. Carin, "Adaptive multi-modality sensing of landmines," *IEEE Trans. Geoscience & Remote Sensing*, vol. 45, pp. 1756-1774, Part 2 June 2007.
- [159] D. Liu, J. Krolik and L. Carin, "Electromagnetic time-reversal-based target detection in uncertain media," *IEEE Trans. Geoscience & Remote Sensing*, vol. 45, pp. 934-944, April 2007.
- [160] D. Williams, C. Wang, X. Liao and L. Carin, "Classification of unexploded ordnance using incomplete multi-sensor multiresolution data," *IEEE Trans. Geoscience & Remote Sensing*, vol. 45, pp. 2364-2373, Part 2 July 2007.
- [161] Y. Qi, J.W. Paisley and L. Carin, "Dirichlet process hidden Markov mixture models with application to music analysis," *IEEE Trans. Signal Processing*, vol. 55, pp. 5209-5224, 2007.
- [162] K. Ni, Y. Qi and L. Carin, "Multi-aspect target detection via the infinite hidden Markov model," *J. Acoustical Soc. Am.*, vol. 121, pp. 2731-2742, May 2007.
- [163] D.B. Dunson, Y. Xue and L. Carin, "The matrix stick-breaking process: Flexible Bayes meta analysis," *J. Am. Statistical Soc.*, vol. 103, pp. 317-327, 2008.
- [164] S. Ji, Y. Xue and L. Carin, "Bayesian compressive sensing," *IEEE Trans. Signal Processing*, vol. 56, pp. 2346-2356, June 2008.
- [165] K.C. Ho, L. Carin, P. Gader and J. Wilson, "An investigation of using the spectral characteristics from ground penetrating radar for landmine/clutter discrimination," *IEEE Trans. Geoscience Remote Sensing*, vol. 46, pp. 1177-1191, 2008.
- [166] X. Zhu and L. Carin, "Scattering from very large randomly rough surfaces using a Markov

- random field equivalent current,” *IEEE Trans. Antennas & Propagation*, vol. 56, pp. 204-214, 2008.
- [167] I. Pruteanu-Malinici and L. Carin, “Infinite hidden Markov models for unusual-event detection in video,” *IEEE Trans. Image Processing*, vol. 17, pp. 811-822, May 2008.
- [168] L. Carin, D. Liu and B. Guo, “*In situ* compressive sensing,” *Inverse Problems*, vol. 24, 2008.
- [169] J. Fang, S. Ji, Y. Xue, and L. Carin, “Multi-task classification by learning the task relevance,” *IEEE Signal Proc. Letts.*, vol. 15, pp. 593-596, 2008.
- [170] D. Williams, L. Kennedy, Y. Yu and L. Carin, “A bivariate Gaussian model for UXO classification with EMI data,” *IEEE Geoscience & Remote Sensing Letters*, Vol. 4, pp. 629 – 633, Oct. 2007.
- [171] G. Bal, L. Carin, D. Liu, K. Ren, “Experimental validation of a transport-based imaging method in highly scattering environments,” *Inverse Problems*, vol. 23, pp. 2527-2539, 2007.
- [172] S. Ji, R. Parr, H. Li, X. Liao and L. Carin, “Point-based policy iteration,” *Proc. Am. Ass. Artificial Intell.*, 2007
- [173] Y. Xue, D. Dunson and L. Carin, “The matrix stick-breaking process for flexible multi-task learning,” *Proc. Int. Conf. Machine Learning*, 2007
- [174] S. Ji and L. Carin, “Bayesian compressive sensing and projection optimization,” *Proc. Int. Conf. Machine Learning*, 2007
- [175] K. Ni, D. Dunson and L. Carin, “Multi-task learning for sequential data via iHMMs and the nested Dirichlet process,” *Proc. Int. Conf. Machine Learning*, 2007
- [176] X. Liao, H. Li and L. Carin, “Quadratically gated mixture of experts for incomplete data classification,” *Proc. Int. Conf. Machine Learning*, 2007
- [177] Z. Zhao, Z. Nie and L. Carin, “Active learning applied to RCS computations with nonuniform sampling using different objective functions,” *IEEE Trans. Antennas Propagation*, vol. 55, pp. 1214-1217, 2007.
- [178] Q. Liu, X. Liao and L. Carin, “Detection of unexploded ordnance via efficient semi-supervised and active learning,” *IEEE Trans. Geoscience & Remote Sensing*, vol. 46, pp. 2558-2567, 2008.
- [179] X. Liao and L. Carin, “Migratory logistic regression for learning concept drift between two data sets with application to UXO sensing,” *IEEE Trans. Geoscience & Remote Sensing*, vol. 47, pp. 1454-1466, 2009.
- [180] S. Ji, D. Dunson, and L. Carin, “Multi-task compressive sensing,” *IEEE Trans. Signal Processing*, vol. 57, pp. 92-106, 2009.

- [181] Q. Liu, X. Liao and L. Carin, “Semi-supervised multitask learning”, *Neural and Information Processing Systems (NIPS)*, 2007.
- [182] K. Ni, J. Paisley, L. Carin and D. Dunson, “Multi-task learning for analyzing and sorting large databases of sequential data,” *IEEE Trans. Signal Processing*, vol. 56, pp. 3918-3931, 2008.
- [183] J. Paisley and L. Carin, “Hidden Markov models with stick breaking priors,” *IEEE Trans. Signal Processing*, vol. 57, pp. 3905-3917, 2009.
- [184] Q. Liu, X. Liao, H. Li, J. Stack and L. Carin, “Semi-supervised multitask learning,” *IEEE Trans. Pattern Analysis Machine Intelligence*, vol. 31, pp. 1074-1086, June 2009.
- [185] J. Paisley and L. Carin, “Nonparametric factor analysis with beta process priors,” *Int. Conf. Machine Learning (ICML)*, 2009.
- [186] H. Li, X. Liao and L. Carin, “Multi-task reinforcement learning in partially observable stochastic environments,” *J. Machine Learning Research*, Vol. 10, pp. 1131-1186, 2009.
- [187] Q. An, C. Wang, I. Shterev, E. Wang, D. Dunson and L. Carin, “Hierarchical kernel stick-breaking process for multi-task image analysis,” *Int. Conf. on Machine Learning*, 2008.
- [188] Y. Qi, D. Liu, L. Carin and D. Dunson, “Multi-task compressive sensing with Dirichlet process priors,” *Int. Conf. on Machine Learning*, 2008.
- [189] L. Ren, D. Dunson and L. Carin, “The dynamic hierarchical Dirichlet process,” *Int. Conf. on Machine Learning*, 2008.
- [190] J.R. Stack, G. Dobeck, X. Liao and L. Carin, “Kernel matching pursuits with arbitrary loss functions,” *IEEE Trans. on Neural Networks*, vol. 20, pp. 395-405, March 2009.
- [191] I. Pruteanu-Malinici, L. Ren, J. Paisley, E. Wang and L. Carin, “Dynamic hierarchical Dirichlet process for modeling topics in time-stamped documents,” *IEEE Trans. Pattern Analysis and Machine Intelligence*, vol. 32, pp. 996-1011, June 2010.
- [192] L. Ren, D. Dunson, S. Lindroth and L. Carin, “Dynamic nonparametric Bayesian models for analysis of music,” *J. Am. Statistical Association*, vol. 105, pp. 458-472, 2010.
- [193] J.A. Bucaro, B.H. Houston, M. Saniga, L.R. Dragonette, T. Yoder, S. Dey, L. Kraus, and L. Carin, “Broadband acoustic scattering measurements of underwater unexploded ordnance (UXO),” *J Acoust Soc Am.*, vol. 123, pp. 738-746, 2008.
- [194] L. Carin, D. Liu, W. Lin and B. Guo, “Compressive sensing for numerical multi-static scattering analysis,” *J. Computational Physics*, Vol. 228, pp. 3464-3477, May 2009.

- [195] L. He, H. Chen and L. Carin, “Tree-Structured Compressive Sensing with Variational Bayesian analysis”, *IEEE Signal Processing Letters*, vol. 17, pp. 233-236, 2010.
- [196] L. He and L. Carin, “Exploiting structure in wavelet-based Bayesian compressive sensing”, *IEEE Trans. Signal Processing*, vol. 57, pp. 3488-3497, 2009.
- [197] A.K. Zaas, M. Chen, J. Varkey, T. Veldman, A.O. Hero III, J. Lucas, Y. Huang, R. Turner, A. Gilbert, R. Lambkin-Williams, N.C. Øien, B. Nicholson, S. Kingsmore, L. Carin, C.W. Woods and G.S. Ginsburg, “Genomic Signatures to Classify Symptomatic Respiratory Viral Infection,” *Cell Host & Microbe*, vol. 6(3), pp. 207-217, Sept. 17, 2009
- [198] L. Ren, L. Du, D. Dunson and L. Carin, “Logistic stick-breaking process,” *J. Machine Learning Research*, 2012.
- [199] M. Chen, D. Carlson, A. Zaas, C. Woods, G.S. Ginsburg, A. Hero III, J. Lucas, and L. Carin, “Detection of viruses via statistical gene expression analysis,” *IEEE Trans. Biomedical Engineering*, pp. 468-479, March 2011.
- [200] L. Du, M. Chen, J. Lucas and L. Carin, “Sticky hidden Markov modeling of comparative genomic hybridization”, *IEEE Trans. Signal Processing*, vol. 10, Oct. 2010.
- [201] B. Chen, M. Chen, J. Paisley, A. Zaas, C. Woods, G.S. Ginsburg, A. Hero III, J. Lucas, D. Dunson and L. Carin, “Nonparametric Bayesian factor analysis: Application to time-evolving viral gene-expression data”, *BMC Bioinformatics*, vol. 11, p. 552, 2010.
- [202] M. Chen, J. Silva, J. Paisley, C. Wang, D. Dunson and L. Carin, “Compressive sensing on manifolds using a nonparametric mixture of factor analyzers: Algorithm and performance bounds”, *IEEE Trans. Signal Processing*, vol. 58, pp. Dec. 2010.
- [203] M. Zhou, H. Chen, J. Paisley, G. Sapiro and L. Carin, “Nonparametric Bayesian dictionary learning for sparse image representations,” *Neural and Information Processing Systems (NIPS)*, 2009.
- [204] L. Du, L. Ren, D. Dunson and L. Carin, “A Bayesian model for simultaneous image clustering, annotation and object segmentation,” *Neural and Information Processing Systems (NIPS)*, 2009.
- [205] C. Cai, X. Chen, X. Liao and L. Carin, “Learning to explore and exploit in POMDPs,” *Neural and Information Processing Systems (NIPS)*, 2009.
- [206] J. Paisley, X. Liao and L. Carin, “Active learning and basis selection for kernel-based linear models: A Bayesian perspective,” *IEEE Trans. Signal Processing*, vol. 58, pp. 2686-2700, 2010.
- [207] L. Carin, B. Guo, and D. Liu, “On enhancing classification performance by exploiting multiple scattering,” *Appl. Phys. Lett.* 93, 254103, 2008.
- [208] J. Paisley, A. Zaas, C.W. Woods, G.S. Ginsburg and L. Carin, “A stick-breaking construction of

the beta process”, *Int. Conf. Machine Learning*, 2010.

[209] V. Cevher, P. Indyk, L. Carin and R.G. Baraniuk, “Sparse signal recovery and acquisition with graphical models”, *IEEE Signal Processing Magazine*, vol. 27, pp. 92-103, 2010.

[210] D. Blei, L. Carin, and D. Dunson, “Probabilistic topic modeling,” *IEEE Signal Processing Magazine*, vol. 27, pp. 55-65, 2010.

[211] X. Ding, L. He and L. Carin, “Bayesian robust principal component analysis,” *IEEE Trans. Image Processing*, vol. 20, pp. 3419-3430, 2011.

[212] E. Wang, D. Liu, J. Silva, D. Dunson and L. Carin, “Joint analysis of time-evolving binary matrices and associated documents,” *Neural and Information Processing Systems (NIPS)*, 2010.

[213] M. Zhou, H. Yang, G. Sapiro, D. Dunson, and L. Carin, “Dependent hierarchical beta process for image interpolation and denoising,” *Artificial Intelligence and Statistics (AISTATS)*, 2011.

[214] E. Salazar, R. Bogdan, A. Gorka, A.R. Hariri and L. Carin, “Exploring the Mind: Integrating Questionnaires and fMRI,” *Proc. Int. Conf. Machine Learning (ICML)*, 2013

[215] C. Wang, X. Liao, D. Dunson and L. Carin, “Multi-task learning for incomplete data”, *J. Machine Learning Research*, vol. 11, pp. 3269-3311, 2010

[216] L. Carin, D. Liu and B. Guo, “Coherence, compressive sensing and random sensor arrays,” *IEEE Antennas & Propagation Magazine*, vol. 53, pp. 28-39, 2011.

[217] L. Carin, R. Baraniuk, V. Cevher, D. Dunson, M. Jordan, G. Sapiro, and M. Wakin, “A Bayesian approach to learning low-dimensional signal models from incomplete measurements,” *IEEE Signal Processing Magazine*, vol. 28, pp. 39-51, March 2011.

[218] X. Zhang, D.B. Dunson and L. Carin, “Tree-structured infinite sparse factor model,” *Proc. Int. Conf. Machine Learning (ICML)*, 2011

[219] L. Li, M. Zhou, G. Sapiro and L. Carin, “On the integration of topic modeling and dictionary learning,” *Proc. Int. Conf. Machine Learning (ICML)*, 2011

[220] H. Chen, D.B. Dunson and L. Carin, “Topic modeling with nonparametric Markov tree,” *Proc. Int. Conf. Machine Learning (ICML)*, 2011

[221] B. Chen, G. Polatkan, G. Sapiro, D. Dunson and L. Carin, “The hierarchical beta process for convolutional factor analysis and deep learning,” *Proc. Int. Conf. Machine Learning (ICML)*, 2011

[222] M. Liu, X. Liao and L. Carin, “The infinite regionalized policy representation,” *Proc. Int. Conf. Machine Learning (ICML)*, 2011

- [223] J. Paisley, L. Carin and D. Blei, “Variational inference for stick-breaking beta process priors,” *Proc. Int. Conf. Machine Learning (ICML)*, 2011
- [224] M. Zhou, H. Chen, J. Paisley, L. Ren, L. Li, Z. Xing, D. Dunson, G. Sapiro and L. Carin, “Nonparametric Bayesian dictionary learning for analysis of noisy and incomplete images,” *IEEE Trans. Image Processing*, vol. 21, pp. 130-144, 2012.
- [225] M. Chen, A. Zaas, C. Woods, G.S. Ginsburg, J. Lucas, D. Dunson and L. Carin, “Predicting Viral Infection from High-Dimensional Biomarker Trajectories,” *J. Am. Statistical Association*, vol. 106, pp. 1259-1279, 2011.
- [226] Y. Huang, A. Zaas, A. Rao, N. Dobigeon, P. Woolf, T. Veldman, C. Oien, M. McClain, J. Varkey, B. Nicholson, L. Carin, S. Kingsmore, C. Woods, G. Ginsburg, and A. Hero, “Temporal dynamics of host molecular responses differentiate symptomatic and asymptomatic influenza A infection,” *PLoS Genetics*, Aug. 2011.
- [227] A. Castrodad, Z. Xing, J. Greer, E. Bosch, L. Carin, and G. Sapiro, “Learning discriminative sparse representations for modeling, source separation, and mapping of hyperspectral imagery,” *IEEE Trans. Geoscience & Remote Sensing*, vol. 49, p. 4263-4272, 2011.
- [228] L. Ren, Y. Wang, D. Dunson and L. Carin, “The kernel beta process,” *Neural Information Processing Systems (NIPS)*, 2011.
- [229] B. Chen, D. Carlson and L. Carin, “On the analysis of multi-channel neural spike data,” *Neural Information Processing Systems (NIPS)*, 2011.
- [230] X. Zhang, D. Dunson and L. Carin, “Hierarchical topic modeling for analysis of time-evolving personal choices,” *Neural Information Processing Systems (NIPS)*, 2011.
- [231] L. Carin, A. Hero, J. Lucas, D. Dunson, M. Chen, R. Henao, A. Tibau-Puig, A. Zaas, C. Woods, and G.S. Ginsburg, “Analysis of high-dimensional longitudinal genomic data for predicting viral infection,” *IEEE Signal Processing Magazine*, 2012.
- [232] Z. Xing, M. Zhou, A. Castrodad, G. Sapiro and L. Carin, “Dictionary learning for noisy and incomplete hyperspectral images,” *SIAM Journal on Imaging Sciences*, 2011.
- [233] E. Wang, E. Salazar, D. Dunson and L. Carin, “Spatio-Temporal Modeling of Legislation and Votes,” *Bayesian Analysis*, vol. 8, pp. 233-268, 2013.
- [234] M. Liu, X. Liao, and L. Carin, “Online Expectation Maximization for Reinforcement Learning in POMDPs,” *Proc. Int. Joint Conf. on Artificial Intelligence (IJCAI)*, 2013.
- [235] M. Ding, L. He, D. Dunson and L. Carin, “Nonparametric Bayesian Segmentation of Multivariate Inhomogeneous Space-Time Poisson Process,” *Bayesian Analysis*, vol. 7, pp. 813-840, 2012.

- [236] M. Zhou, L. Hannah, D. Dunson and L. Carin, “Beta-negative binomial process and Poisson factor analysis,” *Artificial Intelligence and Statistics (AISTATS)*, 2012
- [237] B. Chen, G. Polatkan, G. Sapiro, D. Blei, D. Dunson and L. Carin, “Deep learning with hierarchical convolutional factor analysis,” *IEEE Trans. Pattern Analysis Machine Intelligence*, 2013
- [238] A. Rajwade, D. Kittle, T.-H. Tsai, D. Brady and L. Carin, “Coded hyperspectral imaging and blind compressive sensing,” *SIAM J. Imaging Sciences*, 2013.
- [239] Y. Wang and L. Carin, “Levy Measure Decompositions for the Beta and Gamma Processes,” *Proc. Int. Conf. Machine Learning (ICML)*, 2012
- [240] E. Salazar and L. Carin, “Inferring Latent Structure From Mixed Real and Categorical Relational Data,” *Proc. Int. Conf. Machine Learning (ICML)*, 2012
- [241] M. Chen, W. Carson, M. Rodrigues, R. Calderbank and L. Carin, “Communications Inspired Linear Discriminant Analysis,” *Proc. Int. Conf. Machine Learning (ICML)*, 2012
- [242] S. Han, X. Liao and L. Carin, “Cross-Domain Multitask Learning with Latent Probit Models,” *Proc. Int. Conf. Machine Learning (ICML)*, 2012
- [243] M. Zhou and L. Carin, “Lognormal and Gamma Mixed Negative Binomial Regression,” *Proc. Int. Conf. Machine Learning (ICML)*, 2012
- [244] J. Silva and L. Carin, “Active Learning for Online Bayesian Matrix Factorization,” *Proc. SIGKDD Conf. Knowledge Discovery and Data Mining*, 2012.
- [245] X. Chen, M. Zhou and L. Carin, “The Contextual Focused Topic Model,” *Proc. SIGKDD Conf. Knowledge Discovery and Data Mining*, 2012.
- [246] W.R. Carson, M. Chen, M.R.D. Rodrigues, R. Calderbank and L. Carin, “Communications Inspired Projection Design with Application to Compressive Sensing,” *SIAM J. Imaging Science*, vol. 5, pp. 1185-1212, 2012.
- [247] L. Li, X. Zhang, M. Zhou and L. Carin, “Nested Dictionary Learning for Hierarchical Organization of Imagery and Text,” *Proc. Uncertainty in Artificial Intelligence (UAI)*, 2012
- [248] M. Zhou and L. Carin, “Augment-and-Conquer Negative Binomial Processes,” *Proc. Neural and Information Processing Systems (NIPS)*, 2012
- [249] X. Zhang and L. Carin, “Joint Modeling of a Matrix with Associated Text,” *Proc. Neural and Information Processing Systems (NIPS)*, 2012
- [250] J.M. Duarte-Carvajalino, G. Yu, L. Carin and G. Sapiro, “Task-driven adaptive statistical

compressive sensing of Gaussian mixture models,” *IEEE Trans. Signal Processing*, vol. 61, pp. 585-600, 2013.

[251] C.W. Woods, M.T. McClain, M. Chen, A.K. Zaas, B. Nicholson, J. Varkey, T. Veldman, S.F. Kingsmore, Y. Huang, R. Lambkin-Williams, A.G. Gilbert, A.O. Hero III, E. Ramsburg, S. Glickman, J. Lucas, L. Carin, G.S. Ginsburg, “A host transcriptional signature for presymptomatic detection of infection in humans exposed to influenza H1N1 or H3N2,” *PLOS ONE*, Jan 2013.

[252] J.S. Murray, D.B. Dunson, L. Carin and J.E. Lucas, “Bayesian Gaussian copula factor models for mixed data,” *J. Am. Statistical Soc.*, 2013.

[253] R. Henao, J. W. Thompson, M. A. Moseley, G.S. Ginsburg, L. Carin and J.E. Lucas “Latent Protein Trees,” *Annals of Applied Statistics*, vol. 7, pp. 691-713, 2013

[254] R.J. Langley, E.L. Tsalik, J.C. van Velkinburgh, S.W. Glickman, B.J. Rice, L. Carin, C. Wang, B. Chen, A. Suarez, R.P. Mohny, D.H. Freeman, N. C. Øien, M. Wang, J. You, J. Wulff, J.W. Thompson, M.A. Moseley, S. Reisinger, B.T. Edmonds, B. Grinnell, D.R. Nelson, D.L. Dinwiddie, N.A. Miller, C.J. Saunders, S.S. Soden, A.M.K. Choi, G.R. Corey, G.S. Ginsburg, C.B. Cairns, R.M. Otero, V.G. Fowler Jr, E.P. Rivers, C. W. Woods, and S. F. Kingsmore, “Integration of clinical, metabolomic, and proteomic variation predicts sepsis survival and death,” *Science Translational Medicine*, vol. 5, July 24, 2013

[255] P. Llull, X. Liao, X. Yuan, J. Yang, D. Kittle, L. Carin, G. Sapiro and D.J. Brady, “Coded aperture compressive temporal imaging,” *Optics Express*, April 2013.

[256] E. Salazar, D. Dunson and L. Carin, “Analysis of Space-Time Relational Data with Application to Legislative Voting,” *Computational Statistics and Data Analysis*, 2013.

[257] D. Carlson, J. Vogelstein, Q.Wu, W. Lian, M. Zhou, C.R. Stoetzner, D. Kipke, D. Weber, D. Dunson and L. Carin, “Sorting Electrophysiological Data via Dictionary Learning & Mixture Modeling,” *IEEE Trans. Biomedical Engineering*, 2013

[258] A. K. Zaas, T. Burke, M. Chen, M. McClain, B. Nicholson, T. Veldman, E.L. Tsalik, V. Fowler, E.P. Rivers, R. Otero, S.F. Kingsmore, D. Voora, J. Lucas, A.O. Hero, L. Carin, C.W. Woods, and G.S. Ginsburg, “A Host Based RT-PCR Gene Expression Signature to Identify Acute Respiratory Viral Infection,” *Science Translational Medicine*, 2013

[259] L. Wang, D. Carlson, M.D. Rodrigues, D. Wilcox, R. Calderbank and L. Carin, "Designed Measurements for Vector Count Data," *Proc. Neural and Information Processing Systems (NIPS)*, 2013

[260] D. Carlson, J. Vogelstein, V. Rao and L. Carin, "Real-Time Inference for a Gamma Process Model of Neural Spiking," *Proc. Neural and Information Processing Systems (NIPS)*, 2013

[261] S. Han, X. Liao and L. Carin, "Integrated Non-Factorized Variational Inference," *Proc.*

Neural and Information Processing Systems (NIPS), 2013

[262] A. Stevens, H. Yang, L. Carin, I. Arslan and N. D. Browning, “The potential for Bayesian compressive sensing to significantly reduce electron dose in high-resolution STEM images,” *Microscopy*, 2013.

[263] M. Zhou and L. Carin, “Negative binomial process count and mixture modeling,” *IEEE Trans. Pattern Analysis Machine Intelligence*, 2013.

[264] J. Duarte, C. Lenglet, J. Xu, E. Yacoub, K. Ugurbil, S. Moeller, L. Carin, G. Sapiro, “Estimation of the CSA-ODF using Bayesian Compressed Sensing of Multi-shell HARDI,” *Magnetic Resonance in Medicine*, 2013

[265] T. Campbell, M. Liu, B. Kulis, J.P. How, L. Carin, “Dynamic Clustering via Asymptotics of the Dependent Dirichlet Process Mixture,” *Neural Information Processing Systems (NIPS)*, 2013

[266] Z. Xing, B. Nicholson, M. Jimenez, T. Veldman, L. Hudson, J. Lucas, D. Dunson, A.K. Zaas, C.W. Woods, G.S. Ginsburg and L. Carin, “Bayesian Modeling of Space-Time Properties of Infectious Disease in a College Student Population,” to appear in *J. Applied Statistics*, 2014.

[267] P. Ray, L. Zheng, J. Lucas and L. Carin, “Bayesian joint analysis of heterogeneous genomics data,” *Bioinformatics*, May 15, 2014.

[268] W. Lian, V. Rao, B. Eriksson, and L. Carin, “Modeling correlated arrival events with latent semi-Markov processes,” *Proc. Int. Conf. Machine Learning (ICML)*, 2014.

[269] L. Wang, D. Carlson, M.R.D. Rodrigues, R. Calderbank and L. Carin, “A Bregman matrix and the gradient of mutual information for vector Poisson and Gaussian channels,” *IEEE Trans. Information Theory*, vol. 60, pp. 2611-2629, 2014

[270] C. Hu, E. Ryu, D. Carlson, Y. Wang and L. Carin, “Latent Gaussian Models for Topic Modeling,” *Artificial Intelligence and Statistics (AISTATS)*, 2014

[271] X. Liao, H. Li, and L. Carin, “Generalized alternating projection for weighted- $\ell_{2,1}$ minimization with applications to model-based compressive sensing,” *SIAM J. Imaging Science*, 2014.

[272] R. K. Padmanabhan, V. H. Somasundar, S. D. Griffith, J. Zhu, D. Samoyedny, K. S. Tan, J. Hu, X. Liao, L. Carin, S. S. Yoon, K. T. Flaherty, R. S. DiPaola, D. F. Heitjan, “An active learning approach for rapid characterization of Endothelial cells in human tumors,” *PLOS ONE*, March 2014.

[273] X. Yuan, P. Llull, X. Liao, J. Yang, G. Sapiro, D.J. Brady and L. Carin, “Low-cost compressive sensing for color video and depth,” *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2014

- [274] L. Wang, A. Razi, M.R.D. Rodrigues, R. Calderbank and L. Carin, “Nonlinear Information-Theoretic Compressive Measurement Design,” *Int. Conf. Machine Learning (ICML)*, 2014.
- [275] Y. Wang, P. Rai and L. Carin, “Scalable Nonparametric Bayesian Analysis of Incomplete Multiway Data,” *Int. Conf. Machine Learning (ICML)*, 2014.
- [276] G. Polatkan, M. Zhou, L. Carin, D. Blei, I. Daubechies, “A Bayesian Nonparametric Approach to Image Super-resolution,” *IEEE Trans. Pattern Analysis Machine Intelligence*, 2014.
- [277] H. Zhang and L. Carin, “Multi-Shot Imaging: Joint Alignment, Deblurring and Resolution-Enhancement,” *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2014.
- [278] J. Yang, X. Yuan, X. Liao, P. Lull, D. Brady, G. Sapiro, and L. Carin, “Video Compressive Sensing Using Gaussian Mixture Models,” *IEEE Trans. Image Processing*, 2014.
- [279] N. Strawn, A. Armagan, R. Saab, L. Carin, and D. Dunson, “Finite sample posterior concentration in high-dimensional regression,” *Information and Inference: A Journal of the IMA*, 2014.
- [280] Y. Kaganovsky, D. Li, A. Holmgren, H. Jeon, K.P. MacCabe, D.G. Politte, J.A. O’Sullivan, L. Carin, and D.J. Brady, “Compressed Sampling Strategies for Tomography,” *J. Optical Soc. Am.*, 2014
- [281] G. Chowdhary, M. Liu, R. Grande, T. Walsh, J. How and L. Carin, “Off-Policy Reinforcement Learning with Gaussian Processes,” *Acta Automatica Sinica*, 2014
- [282] Y. Lu, L. Carin, R. Coifman, W. Shain, B. Roysam, “Quantitative Arbor Analytics: Unsupervised Harmonic Co-clustering of Populations of Brain Cell Arbors Based on the L-Measure,” *Neuroinformatics*, 2014
- [283] X. Yuan, V. Rao, S. Han and L. Carin, “Hierarchical Infinite Divisibility for Multiscale Shrinkage,” *IEEE Trans. Signal Processing*, Sept. 2014.
- [284] J. Yang, X. Liao and L. Carin, “Compressive Sensing of Signals from a GMM with Sparse Precision Matrices,” *Neural Information Processing Systems (NIPS)*, 2014
- [285] H. Shaobo, L. Du, E. Gonzales and L. Carin, “Dynamic Topic Modeling via Rank Factor Analysis,” *Neural Information Processing Systems (NIPS)*, 2014
- [286] K. Ulrich, D. Carlson, K. Dzirasa and L. Carin, “Analysis of Brain States from Multi-Region LFP Time-Series,” *Neural Information Processing Systems (NIPS)*, 2014
- [287] D. Carlson, K. Dzirasa and L. Carin, “On the relations of LFPs & Neural Spike Trains,” *Neural Information Processing Systems (NIPS)*, 2014

- [288] R. Henao, X. Yuan and L. Carin, “Bayesian Nonlinear Support Vector Machines and Discriminative Factor Modeling,” *Neural Information Processing Systems (NIPS)*, 2014
- [289] J. Yang, X. Liao, X. Yuan, P. Llull, D.J. Brady, G. Sapiro, and L. Carin, “Compressive Sensing by Learning a Gaussian Mixture Model from Measurements,” *IEEE Trans. Image Processing*, vol. 24, pp. 106-119, Jan 2015.
- [290] E.L. Tsalik, R.J. Langley, D.L. Dinwiddie, N.A. Miller, B. Yoo, J.C. van Velkinburgh, L.D. Smith, I. Thiffault, A.K. Jaehne, A.M. Valente, R. Henao, X. Yuan, S.W. Glickman, B.J. Rice, M.T. McClain, L. Carin, G.R. Corey, G.S. Ginsburg, C.B. Cairns, R.M. Otero, V.G. Fowler Jr, E.P. Rivers, C.W. Woods and S.F. Kingsmore, “An integrated transcriptome and expressed variant analysis of sepsis survival and death,” *Genome Medicine*, 2015
- [291] Y. Zhen, P. Rai, L. Carin and H. Zha “Cross-Modal Similarity Learning via Pairs, Preferences, and Active Supervision,” *Proc. Am. Assoc. Artificial Intelligence (AAAI)*, 2015
- [292] P. Rai, Y. Wang and L. Carin, “Leveraging Features and Networks for Probabilistic Multiway Data Analysis,” *Proc. Am. Assoc. Artificial Intelligence (AAAI)*, 2015
- [293] W. Lian, P. Rai, E. Salazar and L. Carin, “Integrating Features and Similarities: Flexible Models for Heterogeneous Multiview Data,” *Proc. Am. Assoc. Artificial Intelligence (AAAI)*, 2015
- [294] X. Yuan, T.-H. Tsai, R. Zhu, P. Llull, D. Brady, and L. Carin, “Compressive Hyperspectral Imaging with Side Information,” *J. Selected Topics Signal Processing*, to appear, 2015
- [295] Z. Gan, R. Henao, D. Carlson and L. Carin, “Learning Deep Sigmoid Belief Networks with Data Augmentation,” *Artificial Intelligence and Statistics (AISTATS)*, 2015
- [296] D. Carlson, V. Cevher and L. Carin, “Stochastic Spectral Descent for Restricted Boltzmann Machines,” *Artificial Intelligence and Statistics (AISTATS)*, 2015
- [297] W. Lian, R. Talmon, H. Zaveri, L. Carin and R. Coifman, “Multivariate Time-Series Analysis and Diffusion Maps,” *Signal Processing*, 2015
- [298] P. Rai, C. Hu and L. Carin, “Scalable Probabilistic Tensor Factorization for Binary and Count Data,” *Int. Joint. Conf. on Artif. Intell. (IJCAI)*, 2015
- [299] M. Liu, C. Amato, X. Liao, J. How and L. Carin, “Stick-Breaking Policy Learning in DEC-POMDPs,” *Int. Joint. Conf. on Artif. Intell. (IJCAI)*, 2015
- [300] W. Lian, V. Rao and L. Carin, “A Multitask Point Process Predictive Model,” *Int. Conf. Machine Learning (ICML)*, 2015

- [301] Z. Gan, D. Carlson, C. Chen, R. Henao and L. Carin, “Scalable Deep Poisson Factor Analysis for Topic Modeling,” *Int. Conf. Machine Learning (ICML)*, 2015
- [302] R. Henao, X. Yuan and L. Carin, “Non-Gaussian Discriminative Factor Models via the Max-Margin Rank-Likelihood,” *Int. Conf. Machine Learning (ICML)*, 2015
- [303] P. Rai, C. Hu and L. Carin, “Zero-Truncated Poisson Model for Scalable Bayesian Factorization of Massive Binary Tensors with Mode-Networks,” *Conf. on Uncertainty in Artificial Intelligence (UAI)*, 2015
- [304] P. Rai, C. Hu and L. Carin, “Scalable Bayesian Non-Negative Tensor Factorization for Massive Count Data,” *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD)*, (Best Student Paper), 2015
- [305] A. Stevens, L. Kovarik, P. Abellan, X. Yuan, L. Carin and N.D. Browning, “Applying Compressive Sensing to TEM Video: A Substantial Framerate Increase on any Camera,” *Advanced Structural and Chemical Imaging*, 2015
- [306] L. Wang, J. Huang, X. Yuan, K. Krishnamurthy, J. Greenberg, V. Cevher, M.R.D. Rodrigues, D. Brady, R. Calderbank, and L. Carin, “Signal Recovery and System Calibration from Multiple Compressive Poisson Measurements,” *SIAM J. Imaging Sciences*, 2015.
- [307] T.-H. Tsai, P. Llull, X. Yuan, L. Carin, and D.J. Brady, “Spectral-temporal compressive imaging,” *Optics Letters*, 2015
- [308] Y. Kaganovsky, S. Han, S. Degirmenci, D.G. Politte, D.J. Brady, J.A. O’Sullivan, and L. Carin, “Alternating Minimization Algorithm with Automatic Relevance Determination for Transmission Tomography under Poisson Noise,” *SIAM J. Imaging Sciences*, 2015.
- [309] P. Llull, X. Yuan, L. Carin, and D.J. Brady, “Image translation for single-shot focal tomography,” *Optica*, 2015.
- [310] C. Chen, N. Ding and L. Carin, “On the convergence of stochastic gradient MCMC algorithms with high-order integrators,” *Neural and Information Processing Systems (NIPS)*, 2015
- [311] R. Henao, Z. Gan, J. Lu and L. Carin, “Deep Poisson factor modeling,” *Neural and Information Processing Systems (NIPS)*, 2015
- [312] Z. Gan, C. Li, R. Henao, D. Carlson and L. Carin, “Deep temporal sigmoid belief networks for sequence modeling,” *Neural and Information Processing Systems (NIPS)*, 2015
- [313] D.E. Carlson, E. Collins, Y.-P. Hsieh, L. Carin and V. Cevher, “Preconditioned Spectral Descent for Deep Learning,” *Neural and Information Processing Systems (NIPS)*, 2015

- [314] P. Rai, C. Hu, R. Henao, L. Carin, “Large-Scale Bayesian Multi-Label Learning via Topic-Based Label Embeddings,” *Neural and Information Processing Systems (NIPS)*, 2015
- [315] K. Ulrich, D.E. Carlson, K. Dzirasa and L. Carin, “GP Kernels for Cross-Spectrum Analysis,” *Neural and Information Processing Systems (NIPS)*, 2015
- [316] Y. Zhang, R. Henao, J. Zhong, L. Carin and A. Hartemink, “Learning a Hybrid Architecture for Sequence Regression and Annotation,” *Proc. American Association Artificial Intelligence (AAAI)*, 2016
- [317] C. Li, C. Chen and L. Carin, “High-Order Stochastic Gradient Thermostats for Bayesian Learning of Deep Models,” *Proc. American Association Artificial Intelligence (AAAI)*, 2016
- [318] C. Li, C. Chen, D. Carlson and L. Carin, “Preconditioned Stochastic Gradient Langevin Dynamics for Deep Neural Networks,” *Proc. American Association Artificial Intelligence (AAAI)*, 2016
- [319] D.E. Carlson, Y.-P. Hsieh, E. Collins, L. Carin and V. Cevher, Stochastic Spectral Descent for Discrete Graphical Models, *IEEE Journal of Selected Topics in Signal Processing*, 2016
- [320] R. Henao, J.T. Lu, J.E. Lucas and L. Carin, Electronic Health Record Analysis via Deep Poisson Factor Models, *J. Machine Learning Research*, vol. 17, pp. 1-32, 2016
- [321] E.L. Tsalik, R. Henao, M. Nichols, T. Burke, E.R. Ko, M.T. McClain, L.L. Hudson, A. Mazur, D.H. Freeman, T. Veldman, R.J. Langley, E.B. Quackenbush, S.W. Glickman, C.B. Cairns, A.K. Jaehne, E.P. Rivers, R.M. Otero, A.K. Zaas, S.F. Kingsmore, J. Lucas, V.G. Fowler, Jr., L. Carin, G.S. Ginsburg, and C.W. Woods, “Host gene expression classifiers diagnose acute respiratory illness etiology,” *Science Translational Medicine*, 2016.
- [322] C. Hu, P. Rai and L. Carin, “Non-negative Matrix Factorization for Discrete Data with Hierarchical Side-Information,” *Artificial Intelligence and Statistics (AISTATS)*, 2016
- [323] C. Hu, P. Rai and L. Carin, “Topic-Based Embeddings for Learning from Large Knowledge Graphs,” *Artificial Intelligence and Statistics (AISTATS)*, 2016
- [324] S. Han, X. Liao, D.B. Dunson and L. Carin, “Variational Gaussian Copula Inference,” *Artificial Intelligence and Statistics (AISTATS)*, 2016
- [325] Z. Song, R. Henao, D. Carlson and L. Carin, “Learning Sigmoid Belief Networks via Monte Carlo Expectation Maximization,” *Artificial Intelligence and Statistics (AISTATS)*, 2016
- [326] C. Chen, D. Carlson, Z. Gan, C. Li and L. Carin, “Bridging the Gap Between Stochastic Gradient MCMC and Stochastic Optimization,” *Artificial Intelligence and Statistics (AISTATS)*, 2016

- [327] Y. Pu, X. Yuan, A. Stevens, C. Li and L. Carin, “A Deep Generative Deconvolutional Image Model,” *Artificial Intelligence and Statistics (AISTATS)*, 2016
- [328] Y. Kaganovsky, I. Oudinaka, D. Carlson and L. Carin, “Parallel Majorization Minimization with Dynamically Restricted Domains for Nonconvex Optimization,” *Artificial Intelligence and Statistics (AISTATS)*, 2016
- [329] Y. Zhang, R. Henao, C. Li and L. Carin, “Bayesian Dictionary Learning with Gaussian Processes and Sigmoid Belief Networks,” *Int. Joint Conference on Artificial Intelligence (IJCAI)*, 2016
- [330] L. Wang, M. Chen, M. Rodrigues, D. Wilcox, R. Calderbank and L. Carin, “Information-Theoretic Compressive Measurement Design,” *IEEE Trans. Pattern Analysis Machine Intelligence*, 2016
- [331] C. Li, A. Stevens, C. Chen, Y. Pu, Z. Gan and L. Carin, “Learning Weight Uncertainty with Stochastic Gradient MCMC for Shape Classification,” *Computer Vision & Pattern Recognition (CVPR)*, 2016
- [332] Q. Su, X. Liao, C. Chen, L. Carin, “Nonlinear Statistical Learning with Truncated Gaussian Graphical Models,” *Int. Conf. Machine Learning (ICML)*, 2016
- [333] J. Song, Z. Gan and L. Carin, “Factored Temporal Sigmoid Belief Networks for Sequence Learning,” *Int. Conf. Machine Learning (ICML)*, 2016
- [334] W. Wang, C. Chen, W. Chen, P. Rai, and L. Carin, “Deep Distance Metric Learning with Data Summarization,” *European Conference on Machine Learning (ECML)*, 2016.
- [335] R. Hultman, S. Mague, Q. Li, B. Katz, N. Michel, J. Wang, L. David, C. Blount, R. Chandy, S. Kumar, S. Moore, L. Lin, D. Carlson, K. Ulrich, L. Carin, D. Dunson, K. Deisseroth, K. Dzirasa, “Dysregulation of Distinct Prefrontal Cortex-Dependent Circuits Underlies Depression-Related behavior,” *Neuron*, 2016.
- [336] F. Renna, L. Wang, X. Yuan, J. Yang, G. Reeves, R. Calderbank, L. Carin, and M.R.D. Rodrigues, “Classification and Reconstruction of High-Dimensional Signals from Low-Dimensional Features in the Presence of Side Information,” *IEEE Transactions on Information Theory*, 2017
- [337] X. Yuan, X. Liao, P. Llull, D. Brady and L. Carin, “An Efficient Patch-based Approach for Compressive Depth Imaging,” *Applied Optics*, 2016
- [338] Y. Pu, Z. Gan, R. Henao, X. Yuan, C. Li, A. Stevens and L. Carin, “Variational Autoencoder for Deep Learning of Images, Labels and Captions,” *Neural and Information Processing Systems (NIPS)*, 2016
- [339] Y. Zhang, X. Wang, C. Chen, R. Henao and L. Carin, “Towards Unifying Hamiltonian Monte Carlo and Slice Sampling,” *Neural and Information Processing Systems (NIPS)*, 2016

- [340] Z. Song, R. Parr, X. Liao, L. Carin, “Linear Feature Encoding for Reinforcement Learning,” *Neural and Information Processing Systems (NIPS)*, 2016
- [341] C. Chen, N. Ding, C. Li, Y. Zhang, and L. Carin, “Stochastic Gradient MCMC with Stale Gradients,” *Neural and Information Processing Systems (NIPS)*, 2016
- [342] Y. Zhang, R. Henao and L. Carin, “Dynamic Poisson Factor Analysis,” *IEEE Int. Conf. Data Mining (ICDM)*, 2016
- [343] Q. Su, X. Liao, C. Li, Z. Gan and L. Carin, “Unsupervised Learning with Truncated Gaussian Graphical Models,” *Proc. American Association of Artificial Intelligence (AAAI)*, 2017
- [344] A. Stevens, Y. Pu, Y. Sun, G. Spell and L. Carin, “Tensor-Dictionary Learning with Deep Kruskal-Factor Analysis,” *Artificial Intelligence and Statistics (AISTATS)*, 2017
- [345] Z. Gan, C. Gan, X. He, Y. Pu, K. Tran, J. Gao, L. Carin and L. Deng, “Semantic Compositional Networks for Visual Captioning,” *IEEE Conf. Computer Vision & Pattern Recognition (CVPR)*, 2017
- [346] S. Sun, C. Chen and L. Carin, “Learning Structured Weight Uncertainty in Bayesian Neural Networks,” *Artificial Intelligence and Statistics (AISTATS)*, 2017
- [347] Z. Gan, C. Li, C. Chen, Y. Pu, Q. Su, and L. Carin, “Scalable Bayesian Learning of Recurrent Neural Networks for Language Modeling,” *Association for Computational Linguistics (ACL)*, 2017
- [348] Z. Xing, S. Hillygus and L. Carin, “Evaluating U.S. Electoral Representation with a Joint Statistical Model of Congressional Roll-Calls, Legislative Text, and Voter Registration Data,” *Proc. SIGKDD Conf. Knowledge Discovery and Data Mining*, 2017.
- [349] I. Odinaka, J.A. O’Sullivan, D.G. Politte, K.P. MacCabe, Y. Kaganovsky, J.A. Greenberg, M. Lakshmanan, K. Krishnamurthy, A. Kapadia, L. Carin, and D.J. Brady, “Joint System and Algorithm Design for Computationally Efficient Fan Beam Coded Aperture X-ray Coherent Scatter Imaging,” *IEEE Trans. Computational Imaging*, 2017.
- [350] C. Hu, P. Rai and L. Carin, “Deep Generative Models for Relational Data with Side Information,” *Int. Conf. Machine Learning (ICML)*, 2017
- [351] Y. Zhang, Z. Gan, K. Fan, Z. Chen, R. Henao, D. Shen and L. Carin, “Adversarial Feature Matching for Text Generation,” *Int. Conf. Machine Learning (ICML)*, 2017
- [352] Y. Zhang, C. Chen, Z. Gan, R. Henao and L. Carin, “Stochastic Gradient Monomial Gamma Sampler,” *Int. Conf. Machine Learning (ICML)*, 2017
- [353] Z. Gan, Y. Pu, R. Henao, C. Li, X. He and L. Carin, “Learning Generic Sentence Representations Using Convolutional Neural Networks,” *Conf. on Empirical Methods in Natural Language Processing (EMNLP)*, 2017

- [354] C. Li, H. Liu, C. Chen, Y. Pu, L. Chen, R. Henao and L. Carin, “ALICE: Towards Understanding Adversarial Learning for Joint Distribution Matching,” *Neural and Information Processing Systems (NIPS)*, 2017
- [355] Q. Wei, K. Fai, K.A. Heller and L. Carin, “An Inner-Loop Free Solution to Inverse Problems Using Deep Neural Networks,” *Neural and Information Processing Systems (NIPS)*, 2017
- [356] Q. Su, X. Liao and L. Carin, “A Probabilistic Framework for Nonlinearities in Stochastic Neural Networks,” *Neural and Information Processing Systems (NIPS)*, 2017
- [357] Y. Li, M. Murias, S. Major, G. Dawson, K. Dzirasa, L. Carin and D.E. Carlson, “Targeting EEG/LFP Synchrony with Neural Nets,” *Neural and Information Processing Systems (NIPS)*, 2017
- [358] Y. Zhang, D. Shen, G. Wang, Z. Gan, R. Henao, and L. Carin, “Deconvolutional Paragraph Representation Learning,” *Neural and Information Processing Systems (NIPS)*, 2017
- [359] Y. Pu, W. Wang, R. Henao, L. Chen, Z. Gan, C. Li and L. Carin, “Adversarial Symmetric Variational Autoencoder,” *Neural and Information Processing Systems (NIPS)*, 2017
- [360] Y. Pu, Z. Gan, R. Henao, C. Li, S. Han and L. Carin, “VAE Learning via Stein Variational Gradient Descent,” *Neural and Information Processing Systems (NIPS)*, 2017
- [361] Z. Song, Y. Muraoka, R. Fujimaki and L. Carin, “Scalable Model Selection for Belief Networks,” *Neural and Information Processing Systems (NIPS)*, 2017
- [362] Z. Gan, L. Chen, W. Wang, Y. Pu, Y. Zhang, H. Liu, C. Li and L. Carin, “Triangle Generative Adversarial Networks,” *Neural and Information Processing Systems (NIPS)*, 2017
- [363] N.M. Gallagher, K. Ulrich, A. Talbot, K. Dzirasa, L. Carin and D.E. Carlson, “Cross-Spectral Factor Analysis,” *Neural and Information Processing Systems (NIPS)*, 2017
- [364] D. Shen, Y. Zhang, R. Henao, Q. Su and L. Carin, “Deconvolutional Latent-Variable Model for Text Sequence Matching,” *Proc. American Association of Artificial Intelligence (AAAI)*, 2018.
- [365] W. Wang, Y. Pu, V.K. Verma, K. Fan, Y. Zhang, C. Chen, P. Rai and L. Carin, “Zero-Shot Learning via Class-Conditioned Deep Generative Models,” *Proc. American Association of Artificial Intelligence (AAAI)*, 2018.
- [366] Y. Pu, M.R. Min, Z. Gan and L. Carin, “Adaptive Feature Abstraction for Translating Video to Text,” *Proc. American Association of Artificial Intelligence (AAAI)*, 2018.
- [367] Y. Li, M.R. Min, D. Shen, D. Carlson and L. Carin, “Video Generation from Text,” *Proc. American Association of Artificial Intelligence (AAAI)*, 2018.

- [368] Y. Pu, L. Chen, S. Dai, W. Wang, C. Li and L. Carin, Symmetric Variational Autoencoder and Connections to Adversarial Learning, *Artificial Intelligence and Statistics (AISTATS)*, 2018.
- [369] W. Wang, Z. Gan, W. Wang, D. Shen, J. Huang, W. Ping, S. Satheesh and L. Carin, Topic Compositional Neural Language Model, *Artificial Intelligence and Statistics (AISTATS)*, 2018.
- [370] R. Zhang, C. Li, C. Chen and L. Carin, “Learning Structural Weight Uncertainty for Sequential Decision-Making,” *Artificial Intelligence and Statistics (AISTATS)*, 2018.
- [371] H. Xu, D. Luo, X. Chen and L. Carin, “Benefits from Superposed Hawkes Processes,” *Artificial Intelligence and Statistics (AISTATS)*, 2018.
- [372] R. Hultman¹, K. Ulrich, B.D. Sachs, C. Blount, D.E. Carlson, N. Ndubuizu, R.C. Bagot, E. Parise, M.-A.T. Vu, N.M. Gallagher, J. Wang, A.J. Silva, K. Deisseroth, S.D. Mague, M.G. Caron, E.J. Nestler, L. Carin, and K. Dzirasa, “Brain-wide electrical spatiotemporal dynamics encode depression vulnerability,” *Cell*, 2018.
- [373] X. Zhang, X. Yuan and L. Carin, “Nonlocal Low-Rank Tensor Factor Analysis for Image Restoration,” *IEEE Computer Vision and Pattern Recognition (CVPR)*, 2018.
- [374] H. Xu, D. Luo and L. Carin, “Online Continuous-Time Tensor Factorization Based on Pairwise Interactive Point Processes,” *Int. Joint Conference on Artificial Intelligence (IJCAI)*, 2018
- [375] D. Shen, G. Wang, W. Wang, M.R. Min, Q. Su, Y. Zhang, C. Li, R. Henao and L. Carin, “Baseline Needs More Love: On Simple Word-Embedding-Based Models and Associated Pooling Mechanisms,” *Association for Computational Linguistics (ACL)*, 2018
- [376] D. Shen, Q. Su, P. Chapfuwa, W. Wang, G. Wang, L. Carin and R. Henao, “NASH: Toward End-to-End Neural Architecture for Generative Semantic Hashing,” *Association for Computational Linguistics (ACL)*, 2018 [Best Long Paper, Honorable Mention]
- [377] G. Wang, C. Li, W. Wang, Y. Zhang, D. Shen, X. Zhang, R. Henao and L. Carin, “Joint Embedding of Words and Labels for Text Classification,” *Association for Computational Linguistics (ACL)*, 2018
- [378] C. Tao, L. Chen, R. Zhang, R. Henao and L. Carin, “Variational Inference and Model Selection with Generalized Evidence Bounds,” *Int. Conf. Machine Learning (ICML)*, 2018
- [379] R. Zhang, C. Chen, C. Li and L. Carin, “Policy Optimization as Wasserstein Gradient Flows,” *Int. Conf. Machine Learning (ICML)*, 2018
- [380] P. Chapfuwa, C. Tao, C. Li, C. Page, B. Goldstein, L. Carin and R. Henao, “Adversarial Time-to-Event Modeling,” *Int. Conf. Machine Learning (ICML)*, 2018
- [381] C. Chen, C. Li, L. Chen, W. Wang, Y. Pu and L. Carin, “Continuous-Time Flows for Efficient Inference and Density Estimation,” *Int. Conf. Machine Learning (ICML)*, 2018

- [382] H. Xu, L. Carin and H. Zha, “Learning Registered Point Processes from Idiosyncratic Observations,” *Int. Conf. Machine Learning (ICML)*, 2018
- [383] C. Tao, L. Chen, R. Henao, J. Feng and L. Carin, “Chi-Squared Generative Adversarial Net,” *Int. Conf. Machine Learning (ICML)*, 2018
- [384] Y. Pu, S. Dai, Z. Gan, W. Wang, G. Wang, Y. Zhang, R. Henao and L. Carin, “JointGAN: Multi-Domain Joint Distribution Learning with Generative Adversarial Nets,” *Int. Conf. Machine Learning (ICML)*, 2018
- [385] D. Shen, X. Zhang, R. Henao, L. Carin, “Improved Semantic-Aware Network Embedding with Fine-Grained Word Alignment,” *Conf. on Empirical Methods in Natural Language Processing (EMNLP)*, 2018
- [386] D. Shen, M.R. Min, Y. Li, L. Carin, “Learning Context-Aware Convolutional Filters for Text Processing,” *Conf. on Empirical Methods in Natural Language Processing (EMNLP)*, 2018
- [387] H. Xu, W. Wang, W. Liu and L. Carin, “Distilled Wasserstein Learning for Word Embedding and Topic Modeling,” *Neural and Information Processing Systems (NIPS)*, 2018
- [388] X. Zhang, Y. Li, D. Shen and L. Carin, “Diffusion Maps for Textual Network Embedding,” *Neural and Information Processing Systems (NIPS)*, 2018
- [389] L. Chen, S. Dai, C. Tao, D. Shen, Z. Gan, H. Zhang, Y. Zhang and L. Carin, “Adversarial Text Generation via Feature-Mover’s Distance,” *Neural and Information Processing Systems (NIPS)*, 2018
- [390] L. Carin and M. Pencina, “On Deep Learning for Medical Image Analysis,” *J. Am. Medical Association (JAMA)*, Sept. 18, 2018
- [391] C. Li, C. Chen, Y. Pu, R. Henao and L. Carin, “Communication-Efficient Stochastic Gradient MCMC for Neural Networks,” *Proc. American Association of Artificial Intelligence (AAAI)*, 2019
- [392] B. Li, C. Chen, H. Liu, L. Carin, “Towards More Practical Stochastic Gradient MCMC in Differential Privacy,” *Artificial Intelligence and Statistics (AISTATS)*, 2019
- [393] R. Zhang, Z. Wen, C. Chen, C. Fang, T. Yu, and L. Carin, “Scalable Thompson Sampling via Optimal Transport,” *Artificial Intelligence and Statistics (AISTATS)*, 2019
- [394] C. Li, K. Bai, J. Li, G. Wang, C. Chen and L. Carin, “Adversarial Learning of a Sampler Based on an Unnormalized Distribution,” *Artificial Intelligence and Statistics (AISTATS)*, 2019

- [395] L. Chen, Y. Zhang, R. Zhang, C. Tao, Z. Gan, H. Zhang, B. Li, D. Shen, C. Chen and L. Carin, “Improving Sequence-to-Sequence Learning via Optimal Transport,” *Int. Conf. Learning Representations (ICLR)*, 2019
- [396] Y. Cong, M. Zhao, K. Bai and L. Carin, “GO Gradient for Expectation-Based Objectives,” *Int. Conf. Learning Representations (ICLR)*, 2019
- [397] W. Wang, Z. Gan, H. Xu, R. Zhang, G. Wang, D. Shen, C. Chen, and L. Carin, “Topic-Guided Variational Autoencoders for Text Generation,” *Annual Conf. North American Chapter of the Assoc. Computational Linguistics (NAACL)*, 2019
- [398] H. Fu, C. Li, X. Liu, J. Gao, A. Celikyilmaz and L. Carin, “Cyclical Annealing Schedule: A Simple Approach to Mitigate KL Vanishing,” *Annual Conf. North American Chapter of the Assoc. Computational Linguistics (NAACL)*, 2019
- [399] H. Xu, D. Luu, H. Zha and L. Carin, “Gromov-Wasserstein Learning for Graph Matching and Node Embedding,” *Int. Conf. Machine Learning (ICML)*, 2019
- [400] C. Liu, J. Zhuo, P. Cheng, R. Zhang, J. Zhu and L. Carin, “Understanding and Accelerating Particle-Based Variational Inference,” *Int. Conf. Machine Learning (ICML)*, 2019
- [401] C. Tao, S. Dai, L. Chen, K. Bai, J. Chen, C. Liu, R. Zhang, G. Bobashev and L. Carin, “Variational Annealing of GANs: A Langevin Perspective,” *Int. Conf. Machine Learning (ICML)*, 2019
- [402] N. Mehta, L. Carin and P. Rai, “Stochastic Blockmodels Meet Graph Neural Networks,” *Int. Conf. Machine Learning (ICML)*, 2019
- [403] Z. Song, R.E. Parr and L. Carin, “Revisiting the Softmax Bellman Operator: New Benefits and New Perspective,” *Int. Conf. Machine Learning (ICML)*, 2019
- [404] P. Cheng, D. Shen, D. Sundararaman, X. Zhang, Q. Yang, M. Tang, A. Celikyilmaz and L. Carin, “Learning Compressed Sentence Representations for On-Device Text Processing,” *Association for Computational Linguistics (ACL)*, 2019
- [405] D. Shen, A. Celikyilmaz, Y. Zhang, L. Chen, X. Wang, J. Gao and L. Carin, “Towards Generating Long and Coherent Text with Multi-Level Latent Variable Models,” *Association for Computational Linguistics (ACL)*, 2019
- [406] L. Chen, G. Wang, C. Tao, D. Shen, P. Cheng, X. Zhang, W. Wang, Y. Zhang and L. Carin, “Improving Textual Network Embedding with Global Attention via Optimal Transport,” *Association for Computational Linguistics (ACL)*, 2019
- [407] X. Zhang, Y. Yang, S. Yuan, D. Shen and L. Carin, “Syntax-Infused Variational Autoencoder for Text Generation,” *Association for Computational Linguistics (ACL)*, 2019

