GOODMAN, NATHAN A.

The University of Oklahoma
School of Electrical & Computer Engineering
110 W. Boyd Street
Norman, Oklahoma 73019-1102

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EDUCATION

Ph.D., Electrical Engineering
> The University of Kansas, 2002
> Topic: SAR and MTI Processing of Sparse Satellite Clusters

M.S., Electrical Engineering
> The University of Kansas, 1997

B.S., Electrical Engineering, with Distinction
> The University of Kansas, 1995

EXPERIENCE

Associate Professor, 2012-Present
> The University of Oklahoma, Norman, OK

Associate Professor, 2009–2011
> The University of Arizona, Tucson, AZ

Visiting Senior Research Engineer, October 2009 – June 2010
> Georgia Tech Research Institute, Sensors and Electromagnetic Applications Laboratory

Assistant Professor, 2002–2009
> The University of Arizona, Tucson, AZ

Graduate Research Assistant, 1998–2002
> The University of Kansas, Center for Research, Inc., Lawrence, KS

Graduate Teaching Assistant, 2000
> The University of Kansas, Lawrence, KS

RF Systems Engineer, 1996–1998
> Raytheon Systems Company/Texas Instruments Systems Group, Dallas, TX

Graduate Research Assistant, 1995–1996
> The University of Kansas, Center for Research, Inc., Lawrence, KS

Graduate Teaching Assistant, 1995
> The University of Kansas, Lawrence, KS

Undergraduate Research Assistant, 1994–1995
> The University of Kansas, Center for Research, Inc., Lawrence, KS

Test Engineer, 1993
> DNB Engineering, Fullerton, CA

PROFESSIONAL MEMBERSHIPS, COMMITTEES, AND SERVICE

(* = current membership)

*Institute of Electrical and Electronics Engineers

> Senior Member, 2007 - Present
> Member, 1996-1998, 2002-2007
> Student Member, 1994-1996, 1998-2002

*IEEE Aerospace and Electronics Systems Society

*IEEE Signal Processing Society

IEEE Geoscience and Remote Sensing Society

IEEE Antennas and Propagation Society

Deputy Editor-in-Chief, Elsevier *Digital Signal Processing*, 2010 – 2011

Editorial Board, Elsevier Digital Signal Processing, 2011 – Present

Associate Editor, *IEEE Trans. Aerospace & Electronic Systems*, 2012 – Present

Finance Chair, 2012 Sensor Array and Multichannel Signal Processing Workshop (SAM '12)

Technical Co-Chair, *2011 IEEE Radar Conference* (RadarCon)

Technical Program/Review Committees (Conferences)

> Third International Workshop on Cognitive Information Processing, 2012
> Second Cognitive Information Processing Workshop, 2010
> IEEE Radar Conference, 2009 - 2011
> 2007 International Waveform Diversity & Design Conference

Student Involvement Chair, 2006 International Waveform Diversity and Design Conference

Reviewer, *Radio Science, IEEE Signal Processing Letters, IEEE T-GRS, IEEE T-AES, IEEE T-SP*, *IEEE JSTSP*, *IEEE Ant. & Wireless Prop. Letters*, *EURASIP JASP*, *IET Radar, Sonar & Navigation*, *Applied Optics, Elsevier DSP*

Session Chair, "Compressive Sensing I," SPIE Defense, Security, and Sensing 2012

Session Co-Chair, "Compressive Sensing for Radar," IEEE 7th Sensor Array and Multichannel Signal Processing Workshop (SAM 2012)

Session Co-Chair, "Compressive Sensing," 2011 IEEE Radar Conference

Session Co-Chair, "Reconfigurable SAR Systems," 2002 IEEE International Geoscience and Remote Sensing Symposium

Tau Beta Pi

Eta Kappa Nu

Department Head Search Committee, The University of Arizona, ECE, 2011

Engineering Dean Search Committee, The University of Kansas, 2001-2002

Faculty Search Committee, The University of Kansas, 1994

HONORS AND AWARDS

Best Paper Award, 2008 Army Science Conference, (Sensors and Information Processing Category), Orlando, FL, awarded for "Generalized Adaptive Radar Signal Processing."

Senior Member, IEEE

Interactive Session Prize Paper Award, 2001 IEEE International Geoscience and Remote Sensing Symposium, Sydney, Australia, awarded for "The information content of multiple receive aperture SAR systems."

Madison A. and Lila Self Graduate Fellowship, The University of Kansas

Summerfield Scholarship, The University of Kansas

GRANTS AND CONTRACTS

Federally Funded:

Title: *Knowledge Enhanced Compressive Measurement*
PIs: Nathan Goodman, Amit Ashok, Ali Bilgin, Michael Gehm, Michael Marcellin, William Ryan, Bane Vasic
Role: Lead Principal Investigator
Sponsor: DARPA
Dates: 9/21/10 – 11/20/13
Responsibility: 32.5%
Total Award Amount: $3,603,312

Title: *Advances in Cognitive Radar*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Office of Naval Research (ONR)
Dates: 01/01/09 – 09/30/12
Responsibility: 100%
Total Award Amount: $358,373

Title: *STTR: Three-Dimensional Radar Imaging of Ballistic Targets: Generalized Theory of Space-Time Adaptive Processing, Phase II*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Missile Defense Agency (via TSC – prime contractor)
Dates: 10/02/07 – 10/02/09
Responsibility: 100%
Total Award Amount: $257,764

Title: *Cognitive Radar*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: AFOSR
Dates: 3/1/07 – 11/30/09
Responsibility: 100%
Total Award Amount: $336,336

Title: *Large Area Coverage Optical Search while Track and Engage (LACOSTE)*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: DARPA (via Lockheed Martin – prime contractor)
Dates: 7/15/06 – 12/31/07
Responsibility: 100%
Total Award Amount: $150,000

Title: *STTR: Three-Dimensional Radar Imaging of Ballistic Targets: Generalized Theory of Space-Time Adaptive Processing, Phase I*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Missile Defense Agency (via TSC – prime contractor)
Dates: 8/15/06 – 2/15/07
Responsibility: 100%
Total Award Amount: $36,350

Title: *Conformal Antenna Arrays for Reduced-Dimension Spread-Spectrum Communication*
PIs: Nathan Goodman and Kathleen Melde
Role: Principal Investigator
Sponsor: NSF Connection One IUCRC Circuits and Systems Research Center
Dates: 12/16/05 – 8/31/06
Responsibility: 75%
Total Award Amount: $31,455
(Note: Center is sponsored by NSF but largely funded by industry)

Title: *Signal Processing and Formation Design for Distributed Space-Based Radar*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Air Force Research Laboratory (AFRL)
Dates: 1/23/2004 – 7/22/2005
Responsibility: 100%
Total Award Amount: $147,291

Title: *Knowledge-Aided, SAR-Based Covariance Estimation*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Defense Advanced Research Projects Agency (DARPA)
Dates: 4/5/2004 – 8/4/2004
Responsibility: 100%
Total Award Amount: $20,000

Industry Funded:

Title: Increased Imaging Area for SAR Wide-Area Surveillance
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Raytheon Co., Tucson, AZ
Dates: 11/14/2011 – 8/31/2012
Responsbility: 100%
Total Award Amount: $40,000

Title: *Real-Beam Superresolution*
PIs: Pitu Mirchandani, Nathan Goodman
Role: Co-Principal Investigator
Sponsor: Waveband Corp.
Dates: 1/1/2005 – 12/31/2005
Responsibility: 16%
Total Award Amount: $225,000

Title: *Direction Finding Research and Technology*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Rincon Research Corp.
Dates: 1/1/2005 – 12/31/2005
Responsibility: 100%
Total Award Amount: $23,292

Title: *STAP/SAR Research*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Raytheon Co., Tucson, AZ
Dates: 6/23/2003 – 12/31/2003
Responsibility: 100%
Total Award Amount: $31,364

PUBLICATIONS

Refereed Journal Papers:

R. Romero and **N.A. Goodman**, "Cognitive radar network: cooperative adaptive beamsteering for integrated search-and-track application," submitted to *IEEE Trans. Aerospace and Electronic Systems*.

S. Uttam, **N.A. Goodman**, and M.A. Neifeld, "Feature-specific difference imaging," *IEEE Trans. Image Processing*, vol. 21, no. 2, pp. 638-652, February 2012.

R. Romero, J.H. Bae, and **N.A. Goodman**, "Theory and application of SNR- and MI-based matched illumination waveforms," *IEEE Trans. on Aerospace and Electronic Systems*, vol. 47, no. 2, pp. 912-927, April 2011.

H.S. Kim and **N.A. Goodman**, "Power control strategy for distributed multiple-hypothesis detection," *IEEE Trans. on Signal Processing*, vol. 58, no. 7, pp. 3751-3764, July 2010.

S. Uttam and **N.A. Goodman**, "Superresolution of coherent sources in real-beam data," *IEEE Trans. on Aerospace and Electronic Systems*, vol. 46, no. 3, pp. 1557-1566, July 2010.

R. Romero and **N.A. Goodman**, "Waveform design in signal-dependent interference and application to target recognition with multiple transmissions," *IET Radar, Sonar, and Navigation*, vol. 3, no. 4, pp. 328 – 340, August 2009. (INVITED)

W. Wu, C. Cooper, and **N.A. Goodman**, "Switched-element direction finding," *IEEE Trans. on Aerospace and Electronic Systems*, vol. 45, no. 3, pp. 1209 – 1217, July 2009.

S. Uttam, **N.A. Goodman**, M.A. Neifeld, C. Kim, R. John, J. Kim, and D. Brady, "Optically multiplexed imaging with superposition space tracking," *Optics Express*, vol. 17, no. 3, pp. 1691 – 1713, Feb. 2, 2009.

Peng Jin, **N.A. Goodman**, and K.L. Melde, "Exploiting directional antennas for reduced-dimension space-time RAKE receiving," *IEEE Trans. Vehicular Technology*, vol. 57, no. 6, pp. 3880-3885, Nov. 2008.

D.P. Bruyere and **N.A. Goodman**, "Adaptive detection and diversity order in multistatic radar," *IEEE Trans. on Aerospace and Electronic Systems*, vol. 44, no. 4, pp. 1615-1623, Oct. 2008.

N.A. Goodman, P.R. Venkata, and M.A. Neifeld, "Adaptive waveform design and sequential hypothesis testing for target recognition with active sensors," *IEEE J. Selected Topics in Signal Processing*, vol. 1, no. 1, pp. 105-113, June 2007.

N.A. Goodman, "MIMO channel rank via the aperture-bandwidth product," *IEEE Trans. Wireless Communications*, vol. 6, no. 6, pp. 2246-2254, June 2007.

N.A. Goodman and D. Bruyere, "Optimum and decentralized detection for multistatic airborne radar," *IEEE Trans. Aerospace and Electronic Systems*, vol. 43, no. 2, pp. 806-813, April 2007.

N.A. Goodman and J.M. Stiles, "On clutter rank observed by arbitrary arrays," *IEEE Trans. Signal Processing*, vol. 55, no. 1, pp. 178-186, January 2007.

N.A. Goodman and K.L. Melde, "The impact of antenna directivity on small-scale fading in indoor environments," *IEEE Trans. Antennas and Propagation*, vol. 54, no. 12, pp. 3771-3777, December 2006

P.R. Gurram and **N.A. Goodman**, "Spectral-domain covariance estimation with a priori knowledge," *IEEE Trans. Aerospace and Electronic Systems*, vol. 42, no. 3, pp. 1010-1020, July 2006.

N.A. Goodman and J. Stiles, "Resolution and synthetic aperture characterization of sparse radar arrays", *IEEE Trans. Aerospace and Electronics Systems*, vol. 39, no. 3, pp. 921-935, July 2003.

N.A. Goodman, S. Lin, D. Rajakrishna, and J. Stiles, "Processing of multiple-receiver, spaceborne arrays for wide-area SAR," *IEEE Trans. Geoscience and Remote Sensing*, vol. 40, no. 4, pp. 841-852, April 2002.

Book Chapters:

N.A. Goodman, "Adaptive Waveform Design for Radar Target Classification," to appear in *Waveform Design and Diversity for Advanced Radar Systems*, IET Publishing.

N.A. Goodman, P. Venkata, and R. Romero, "Iterative Technique for System Identification with Adaptive Signal Design," in *Principles of Waveform Diversity and Design*, SciTech Publishing, 2010, pp. 939-945.

N.A. Goodman, J.H. Bae, and R. Romero, "Waveform Design for Target Class Discrimination with Closed-Loop Radar," in *Principles of Waveform Diversity and Design*, SciTech Publishing, 2010, pp. 1102-1108.

Conference Papers:

B.R. Pollock and **N.A. Goodman**, "Structured de-chirp for compressive sampling of LFM waveforms," accepted to 7th IEEE Sensor Array and Multichannel Signal Processing Workshop," June 2012. (INVITED)

B.R. Pollock and **N.A. Goodman**, "Detection performance of multibranch and multichannel compressive receivers," accepted to 7th IEEE Sensor Array and Multichannel Signal Processing Workshop," June 2012. (INVITED)

B. Pollock and **N.A. Goodman**, "An examination of the effects of sub-Nyquist sampling on SNR," accepted to *SPIE Defense, Security, and Sensing: Compressive Sensing*, April 2012.

F. Liu, Y. Kim, **N.A. Goodman**, A. Ashok, A. Bilgin, "Compressive sensing of frequency-hopping spread spectrum signals," accepted to *SPIE Defense, Security, and Sensing: Compressive Sensing*, April 2012.

J. Bae and **N.A. Goodman**, "Widely separated MIMO radar with adaptive waveform for target classification," in Proc. *4th International Workshop on Computational Advances in Multi-Sensor Adaptive Processing* (CAMSAP 2011), San Juan, Dec. 2011. (INVITED)

B. Pollock and **N.A. Goodman**, "Detection performance of compressively sampled radar signals," in *Proc. 2011 IEEE Radar Conference*, Kansas City, May 2011.

R. Romero and **N.A. Goodman**, "Adaptive beamsteering for search-and-track application with cognitive radar network," in *Proc. 2011 IEEE Radar Conference*, Kansas City, May 2011.

J.H. Bae and **N.A. Goodman**, "Automatic target recognition with unknown orientation and adaptive waveforms," in *Proc. 2011 IEEE Radar Conference*, Kansas City, May 2011.

K.M. Jagiello, W.E. Ryan, M.W. Marcellin, and **N.A. Goodman**, "Compressed sensing using Reed-Solomon and Q-ary LDPC codes," in *Proc. 2010 International Telemetering Conference*, San Diego, Oct. 2010. [Cd]

C.M. Kenyon and **N.A. Goodman**, "Range-Doppler ambiguity mitigation via closed-loop, adaptive PRF selection," in *Proc. 2010 International Conference on Electromagnetics in Advanced Applications* (ICEAA), pp. 608-611, Sydney, Australia, Sept. 2010. (INVITED)

R. Romero, C.M. Kenyon, and **N.A. Goodman**, "Channel probability ensemble update for multiplatform radar systems, in *Proc. 2010 International Waveform Diversity and Design Conference*, pp. 182-187, Niagara Falls, August 2010.

J.H. Bae and **N.A. Goodman**, "Evaluation of modulus-constrained matched illumination waveforms for target identification," in *Proc. 2010 IEEE Radar Conference*, pp. 871-876, Washington DC., May 2010.

H.S. Kim and **N.A. Goodman**, "Waveform design by task-specific information," in *Proc. 2010 IEEE Radar Conference*, pp. 848-852, Washington DC., May 2010.

R. Romero and **N.A. Goodman**, "Improved waveform design for target recognition with multiple transmissions," in *Proc. 2009 International Waveform Diversity and Design Conference*, Orlando, FL, pp. 26-30, Feb. 2009.

P.D. Mountcastle, **N.A. Goodman**, and C.J. Morgan, "Generalized adaptive radar signal processing," *2008 Army Science Conference*, Orlando, FL, Dec. 2008. [Cd]

P. Nielsen and **N.A. Goodman**, "Integrated detection and tracking via closed-loop radar with spatial-domain matched illumination," in *Proc. 2008 International Conference on Radar*, Adelaide, Australia, pp. 546-551, Sept. 2008.

S. Uttam, **N.A. Goodman**, M.A. Neifeld, D. Brady, J. Kim, and C. Kim, "Optically multiplexed imaging with superposition-space tracking," in *Proc. SPIE Conference on Optics & Photonics*, San Diego, CA, Aug. 2008.

S. Uttam, **N.A. Goodman**, and M.A. Neifeld, "Direct reconstruction of difference images from optimal spatial-domain projections, in *Proc. SPIE Conference on Optics & Photonics*, San Diego, CA, Aug. 2008.

P. Ramani, K.L. Cummins, and **N.A. Goodman**, "Effect of propagation path characteristics on low-frequency cloud-to-ground lightning signal parameters," in *Proc. 2008 International Geoscience and Remote Sensing Symposium*, vol. 2, pp. 715-718, Boston, MA, July 2008.

S. Uttam, **N.A. Goodman**, and M.A. Neifeld, "Difference imaging from linear spatial-domain projections," *SIAM Conference on Imaging Science*, San Diego, CA July 2008.

T. Butler and **N.A. Goodman**, "Multistatic target classification with adaptive waveforms," in *Proc. 2008 IEEE Radar Conference*, pp. 1-6, Rome, Italy, May 2008.

R. Romero and **N.A. Goodman**, "Information-theoretic matched waveform in signal-dependent interference," in *Proc. 2008 IEEE Radar Conference*, pp. 1-6, Rome, Italy, May 2008.

N.A. Goodman, "Closed-loop radar with adaptively matched waveforms," in *Proc. 2007 International Conference on Electromagnetics in Advanced Applications*," Torino, Italy, pp. 468-471, Sept. 2007. (INVITED).

J.H. Bae and **N.A. Goodman**, "Adaptive waveforms for target class discrimination," in *Proc. 2007 International Waveform Diversity and Design Conference*, Pisa, Italy, pp. 395-399, June 2007.

D. Bruyere and **N.A. Goodman**, "Performance of multistatic space-time adaptive processing," in *Proc. 2006 IEEE Radar Conference*, Verona, NY, pp. 533-538, Apr. 2006.

T.L. Teer and **N.A. Goodman**, "Multistatic SAR algorithm with image combination," in *Proc. 2006 IEEE Radar Conference*, Verona, NY, pp. 490-497, Apr. 2006.

Phaneendra R. Venkata and **N.A. Goodman**, "Novel iterative techniques for radar target discrimination," *2006 International Waveform Diversity and Design Conference*, Lihue, HI, Jan. 2006. [Cd]

D. Bruyere and **N.A. Goodman**, "SINR improvements in multi-sensor space-time adaptive processing," in *Proc. Second IASTED International Conference on Antennas, Radar, and Wave Propagation*," Banff, CA, July 2005.

P. Jin, **N.A. Goodman**, and K.L. Melde, "Performance of directional antenna arrays in CDMA ST-RAKE receiving," in *Proc. 2005 IEEE Antennas and Propagation Symposium*, Wash. D.C., vol. 4A, pp. 150-153, July 2005.

N.A. Goodman and P.R. Gurram, "STAP training through knowledge-aided predictive modeling," in *Proc. of the 2004 IEEE Radar Conference*, Philadelphia, pp. 388 – 393, April, 2004.

N.A. Goodman and J.M. Stiles, "Radar satellite constellations: SAR characterization and analysis," in *Proc. of the 2003 Advanced SAR Workshop*, Montreal, Canada, June, 2003. (INVITED)

J. Stiles and **N.A. Goodman**, "Wide area, fine resolution SAR from Multi-Aperture Radar Arrays," in *Proc. of the 2003 Advanced SAR Workshop*, Montreal, Canada, June, 2003. (INVITED)

N.A. Goodman and J.M. Stiles, "Synthetic aperture characterization of radar satellite constellations," in *Proc. of the 2002 IEEE International Geoscience and Remote Sensing Symposium*, Toronto, Canada, June, 2002. (INVITED)

N.A. Goodman and J.M. Stiles, "The information content of multiple receive aperture SAR systems," in *Proc. of the IEEE International Geoscience and Remote Sensing Symposium*, Sydney, Australia, July, 2001.

J.M. Stiles and **N.A. Goodman**, "Processing of multi-aperture SAR to produce fine-resolution images of arbitrarily large extent," in *Proc. of the 2001 IEEE Radar Conference*, Atlanta, Georgia, pp. 451-456, May 2001.

N.A. Goodman and J.M. Stiles, "A general signal processing algorithm for MTI with multiple receive apertures," in *Proc. of the 2001 IEEE Radar Conference*, Atlanta, Georgia, pp. 315-320, May 2001.

J.M. Stiles, **N.A. Goodman**, and Guruvayurappan, "Minimum mean-squared error GPR processor for resolving shallow objects," accepted for *Proc. of the SPIE Conference on Detection and Remediation of Mines and Minelike Targets*, April 2001.

N.A. Goodman and J.M. Stiles, "An MMSE filter for range sidelobe reduction," in *Proc. of the IEEE International Geoscience and Remote Sensing Symposium*, Honolulu, Hawaii, pp. 2365-367, July 2000.

J.M. Stiles, **N.A. Goodman**, and S. Lin, "Performance and processing of SAR satellite clusters," in *Proc. of the IEEE International Geoscience and Remote Sensing Symposium*, Honolulu, Hawaii, pp. 883-885, July 2000.

N.A. Goodman, D. Rajakrishna, and J.M. Stiles, "Wide swath, high resolution SAR using multiple receive apertures," in *Proc. of the IEEE International Geoscience and Remote Sensing Symposium*, Hamburg, Germany, pp. 1767-1769, June 1999.

N.A. Goodman, C. Leuschen, R. Plumb, and C. Allen, "Subsurface imaging techniques applied at a ground-penetrating radar test facility," in *Proc. of the 6th International Conference on Ground Penetrating Radar*, Sendai, Japan, pp. 395-397, October 1996.

C. Leuschen, **N.A. Goodman**, C. Allen, and R. Plumb, "An interferometric technique for synthetic-aperture ground-penetrating radar," in *Proc. of the 6th International Conference on Ground Penetrating Radar*, Sendai, Japan, pp. 405-409, October 1996.

C. Leuschen, **N.A. Goodman**, C. Allen, and R. Plumb, "An interferometric technique for synthetic aperture ground penetrating radar," in *Proc. of the 1996 International Geoscience and Remote Sensing Symposium*, Lincoln, Nebraska, pp. 2033-2035, May 1996.

N.A. Goodman, C. Leuschen, R. Plumb, and C. Allen, "Subsurface imaging using ground-penetrating radar measurements," in *Proc. of the 1996 International Geoscience and Remote Sensing Symposium*, Lincoln, Nebraska, pp. 2036-2037, May 1996.

ADDITIONAL PRESENTATIONS/SEMINARS

N.A. Goodman, "Foundations of Cognitive Radar and Information-Optimal Sensing," to Georgia Tech Research Institute, Sensors & Electromagnetic Applications Laboratory (GTRI-SEAL), November 2009.

N.A. Goodman, "Foundations of Cognitive Radar and Information-Optimal Sensing," to Air Force Research Laboratory (AFRL), Sensors Directorate, Dayton, OH, Dec. 2008.

P. Mountcastle, **N.A. Goodman**, and C.J. Morgan, "Generalized Adaptive Radar Signal Processing," 2008 Missile Defense Sensors, Environments, and Applications (MD-SEA), Monterey, CA, Oct. 2008. (Classified)

N.A. Goodman, "Foundations of Cognitive Radar," to Dept. of ESE, Washington Univ. St. Louis, St. Louis, MO, June 2008.

N.A. Goodman, "Foundations of Cognitive Radar," to Radiology Research Group, University of Arizona, Tucson, AZ, March 2008.

D. Bruyere and **N.A. Goodman**, "Performance of multistatic space-time adaptive processing," Raytheon RF Symposium, Dallas, TX, April 2006.

P. Jin, **N.A. Goodman**, and K.L. Melde, "Conformal antenna arrays for reduced-dimension spread-spectrum communication," Connection One Semi-Annual Meeting, Phoenix, AZ, Jan. 2006.

N.A. Goodman, "SAR-based covariance estimation for STAP," *3rd Annual KASSPER Workshop*, Clearwater, Florida, April 2004.

N.A. Goodman, "LDPC Codes with Application to Multi-Antenna Communication Systems – Part II: MIMO Channels and the Aperture-Bandwidth Product," to General Dynamics, Scottsdale, AZ, Oct. 2003.

N.A. Goodman, "SAR and MTI Processing of Sparse Satellite Cluters," to AFRL-VS, Kirtland AFB, Albuquerque, NM, Aug. 2002.

N.A. Goodman, "SAR and MTI Processing of Sparse Satellite Clusters," to IEEE AESS and GRSS Atlanta Section Meeting, November 2001.

CONTINUING EDUCATION

"National Effective Teaching Institute," 2004 Annual Conference of the ASEE, June 17-19, 2004.

"Adaptive Array Processing and STAP: Theory, Applications, and Advanced Techniques,"
2001 IEEE Radar Conference Tutorial, May 3, 2001

"Best Practices in Teaching: Preparing for the Professoriate,"
University of Kansas, Center for Teaching Excellence, May 2001

"STAP-I: Basics, Limitations, and Tradeoffs,"
2000 IEEE Radar Conference Tutorial, May 11, 2000

"Principles of Radar", Raytheon TI Systems Training Course, 1998

"Principles of Pulse Doppler Radar: High, Medium, and Low PRF,"
Georgia Institute of Technology Continuing Education, April 1-3, 1997

"Radar Signal Processing," Texas Instruments Learning Institute, October 9-11, 1996