GOODMAN, NATHAN A., IEEE FELLOW

Kenneth L. and Janet M. Smalley Presidential Professor
School of Electrical & Computer Engineering
Associate Vice President for Research and Partnerships
The University of Oklahoma
Email: goodman@ou.edu
Web: https://www.ou.edu/coe/ece/people/faculty/nathan-goodman

Director
Advanced Radar Research Center
3190 Monitor Avenue
Norman, Oklahoma 73019

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

Director, 7/2025 – Present
Advanced Radar Research Center, The University of Oklahoma, Norman, OK

Professor, 2016 – Present
School of Electrical and Computer Engineering, The University of Oklahoma, Norman, OK

Director of Research, 2015 – 2025
Advanced Radar Research Center, The University of Oklahoma, Norman, OK

Associate Professor, 2012 – 2016
School of Electrical and Computer Engineering, The University of Oklahoma, Norman, OK

Associate Director, 2012 – 2014
Advanced Radar Research Center, The University of Oklahoma, Norman, OK

Associate Professor, 2009 – 2011
Department of Electrical and Computer Engineering, The University of Arizona, Tucson, AZ

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

Assistant Professor, 2002 – 2009
Department of Electrical and Computer Engineering, The University of Arizona, Tucson, AZ

Graduate Research Assistant, 1998 – 2002
Radar Systems and Remote Sensing Lab, The University of Kansas, Lawrence, KS

Graduate Teaching Assistant, 2000
Electrical Engineering and Computer Science, 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
Radar Systems and Remote Sensing Lab, The University of Kansas, Lawrence, KS

Graduate Teaching Assistant, 1995
Electrical Engineering and Computer Science, The University of Kansas, Lawrence, KS

Undergraduate Research Assistant, 1994 – 1995
Radar Systems and Remote Sensing Lab, The University of Kansas, Lawrence, KS

EMC Test Engineer, 1993
DNB Engineering, Fullerton, CA

PROFESSIONAL MEMBERSHIPS, COMMITTEES, AND SERVICE

(* = current membership)

*Institute of Electrical and Electronics Engineers
Fellow, 2024 – Present
Senior Member, 2007 – 2024
Member, 1996 – 1998, 2002 – 2007
Student Member, 1994 – 1996, 1998 – 2002

*IEEE Aerospace and Electronic Systems (AESS) Society

*IEEE Signal Processing Society (SPS)

IEEE Geoscience and Remote Sensing Society (GRSS)

IEEE Antennas and Propagation Society (APS)

Chair, IEEE AESS Radar Systems Panel, 2020 – 2022

Chair, IEEE AESS Radar Systems Panel Conferences Committee, 2018 – 2020

Member, IEEE AESS Radar Systems Panel, 2015 – 2022

Co-Chair, NATO SET-227 Research Task Group on Cognitive Radar, 2015 – 2019

Lecturer, NATO Lecture Series on *Cognition and Radar Sensing*, 2015 – 2017

Guest Editor, *IET Radar, Sonar & Navigation*, Special Issue on Cognitive Radar

Associate Editor, Radar Systems Technical Area, *IEEE Transactions on Aerospace & Electronic Systems*, 2012 – 2018

Editorial Board, Elsevier *Digital Signal Processing*, 2011 – 2012

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

Tutorials Co-Chair, 2025 IEEE International Radar Conference (RADAR ’25)

Technical Co-Chair, 2024 IEEE Radar Conference (RadarConf ’24)

General Co-Chair, 2018 IEEE Radar Conference (RadarConf ‘18)

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

Technical Co-Chair, 2011 IEEE Radar Conference (RadarConf '11)

Student Involvement Chair, 2006 International Waveform Diversity and Design Conference

Technical Program/Review Committees (Conferences)
- 2025 IEEE International Radar Conference
- IEEE Radar Conference, 2009 – 2026
- International Radar Conference, 2019, 2022 – 2024
- 2020 European Radar Conference (EuRAD)
- 2020 IEEE International Radar Conference
- 2015 IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP 2015)
- 3rd International Workshop on Compressed Sensing Theory and its Applications to Radar, Sonar and Remote Sensing (CoSeRa 2015)
- 2014 International Conference on Acoustics, Speech, and Signal Processing (ICASSP)
- 2013 International Conference on Acoustics, Speech, and Signal Processing (ICASSP)
- IEEE 9th Sensor Array and Multichannel Signal Processing Workshop (SAM 2016)
- IEEE 7th Sensor Array and Multichannel Signal Processing Workshop (SAM 2012)
- Third International Workshop on Cognitive Information Processing, 2012
- Second Cognitive Information Processing Workshop, 2010
- 2007 International Waveform Diversity & Design Conference

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

Technical Track Co-Chair, "Radar Techniques," 2025 IEEE Radar Conference

Technical Track Chair, "Radar Management Techniques," 2023 International Radar Conference

Technical Track Chair, "Cognitive Radar," 2023 IEEE Radar Conference

Technical Track Chair, "MIMO/Frequency-Diverse Radar," 2022 IEEE Radar Conference

Technical Track Chair, "Cognitive Radar & Machine Learning," 2021 IEEE Radar Conference

Technical Track Chair, "Cognitive/Automated Sensing, Learning Methods," 2020 IEEE Radar Conference

Technical Track Co-Chair, "Emerging Technology," 2017 IEEE Radar Conference

Technical Track Chair, "Civil/Security Radar Applications," 2015 IEEE Intl. Radar Conference

Technical Track Chair, "Applications," 2014 IEEE Radar Conference

Student Paper Committee, 2023 International Radar Conference

Session Co-Chair, "SAR/ISAR ATR," 2024 IEEE Radar Conference

Session Chair, "Imaging", 2024 IEEE Radar Conference

Session Co-Chair, "Radar Systems 2," 2023 International Radar Conference

Session Co-Chair, "MIMO & Frequency-Diverse Arrays," 2023 IEEE Radar Conference

Session Co-Chair, "Radar System Concepts 2," 2022 IEEE Radar Conference

Session Co-Chair, “Radar Signal Processing 4,” 2022 IEEE Radar Conference

Session Co-Chair, “Cognitive Radar and Machine Learning,” 2021 IEEE Radar Conference

Session Co-Chair, “Spectrum Sharing 2,” 2019 IEEE Radar Conference

Session Co-Chair, “Radar Waveform Design,” 2018 IEEE Radar Conference

Session Co-Chair, “Radar Detection,” 2018 IEEE Radar Conference

Session Co-Chair, “Target Clutter: Target and Clutter Signatures,” 2017 Intl. Conference on Radar Systems

Session Co-Chair, “SAR 1,” 2017 IEEE Radar Conference

Session Co-Chair, “Imaging Radar,” 2017 IEEE Radar Conference

Session Co-Chair, “Antennas and RF Front Ends,” 2016 IEEE Radar Conference

Session Co-Chair, “Cognitive/Multi-Mission Radar,” 2015 IEEE Intl. Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP 2015)

Session Co-Chair, “Cognitive Radar,” 2015 IEEE Intl. Radar Conference

Session Co-Chair, “Civilian and Commercial Radar,” 2014 IEEE Radar Conference

Session Co-Chair, “Compressive Sensing for Urban Radar,” IEEE 8th Sensor Array and Multichannel Signal Processing Workshop (SAM 2014)

Session Co-Chair, “Optical and RF Systems,” 10th International Conference on Sampling Theory and Applications (SampTA 2013)

Session Chair, “Sparsity and Compressed Sensing,” 2013 IEEE Radar Conference

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

SELECTED ACADEMIC MEMBERSHIPS, COMMITTEES, AND SERVICE

Tau Beta Pi

Eta Kappa Nu

Radar Innovations Laboratory, Building Committee, The University of Oklahoma, 2011 – 2014

Member, School of Engineering Advisory Board, The University of Kansas School of Engineering, 2024 – Present

Member, Faculty Senate Research Advisory Committee to the VPRP, The University of Oklahoma, 2021 – 2024

Member, Committee A, School of ECE, The University of Oklahoma, 2019 – 2021

Member, Senior Assoc. VPRP Search Committee, The University of Oklahoma, 2020

Member, Faculty Search Committee, The University of Oklahoma, ECE, 2019 – 2021

Chair, Faculty Search Committee, The University of Oklahoma, ECE, 2017 – 2018

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

Member, Engineering Dean Search Committee, The University of Kansas, 2001 – 2002

Member, Faculty Search Committee, The University of Kansas, 1994

HONORS AND AWARDS

Fellow of the IEEE (Class of 2024)

NATO SET Panel Excellence Award, awarded to SET-216 Lecture Series on "Cognition and Radar Sensing"

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

Senior Member, IEEE (2007)

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: *Custom CFAR and Clutter Cancellation Algorithms and Implementation*
PIs: Nathan Goodman and Justin Metcalf
Role: Principal Investigator
Sponsor: FAA
Dates: 5/14/2024 – 5/13/2025
Responsibility: 80%
Total Award Amount: $177,465

Title: *DARPA Beyond Linear Processing (BLiP)*
PIs: Nathan Goodman and Justin Metcalf
Role: Principal Investigator
Sponsor: DARPA (via STR – prime contractor)
Dates: 7/13/2023 – 12/20/2024
Responsibility: 50%
Total Award Amount: $515,164

Title: *Near-Field Scanner and Projects for Advanced Digital Radar*
PIs: Mark Yeary, Robert Palmer, Caleb Fulton, Jorge Salazar-Cerreno, Nathan Goodman, Hjalti Sigmarsson, Jay McDaniel, Jessica Ruyle, Justin Metcalf
Role: Co-Investigator
Sponsor: Office of Naval Research (ONR)
Dates: 9/24/2020 – 9/23/2024
Responsibility: 11%
Total Award Amount: $7,405,000

Title: *Intelligent Algorithms for All-Digital Arrays*
PIs: Tian You-Yu, Nathan Goodman, and David Schvartzman Cohenca
Role: Co-Investigator
Sponsor: United States Air Force
Dates: 9/01/2021 – 09/14/2024
Responsibility: 50%
Total Award Amount: $504,419

Title: *Multi-Band Mobile Bistatic Data Collection Systems and Analysis*
PIs: Nathan Goodman, Mark Yeary, and Caleb Fulton
Role: Lead Principal Investigator
Sponsor: AFRL/RYM
Dates: 4/5/2017 – 4/15/2024
Responsibility: 55%
Total Award Amount: $2,000,000

Title: *Algorithm Development for Distributed Radar Image Formation Technology (DRIFT)*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: DARPA (via Jacobs Technology – prime contractor)
Dates: 12/12/2023 – 3/31/2024
Responsibility: 100%
Total Award Amount: $12,000

Title: *All-Digital Polarimetric Phased Array Radar Mobile Testbed*
PIs: Mark Yeary, Robert Palmer, Caleb Fulton, Jorge Salazar-Cerreno, Hjalti Sigmarsson, and Nathan Goodman
Role: Co-Investigator
Sponsor: Office of Naval Research (ONR)
Dates: 4/29/2019 – 4/28/2023
Responsibility: 4%
Total Award Amount: $5,792,117

Title: *Ku-Band Synthetic Aperture Radar Emulator*
PIs: Jay McDaniel, Hjalti Sigmarsson, and Nathan Goodman
Role: Co-Investigator
Sponsor: Sandia Laboratories
Dates: 12/03/2020 – 9/30/2022
Responsibility: 20%
Total Award Amount: $213,959

Title: *All-Digital Polarimetric Phased Array Radar Mobile Testbed*
PIs: Mark Yeary, Robert Palmer, Caleb Fulton, Jorge Salazar-Cerreno, Hjalti Sigmarsson, and Nathan Goodman
Role: Co-Investigator
Sponsor: Office of Naval Research (ONR)
Dates: 9/30/2018 – 9/29/2022
Responsibility: 5%
Total Award Amount: $5,471,125

Title: *Resource Management for Spectral Cooperative Sensing of the Spectrum and Sharing of Spectral Situational Awareness Information*
PIs: Justin Metcalf and Nathan Goodman
Role: Co-Investigator
Sponsor: Army Research Laboratory (via Alion – prime contractor)
Dates: 11/30/2020 – 6/09/2025
Responsibility: 40%
Total Award Amount: $230,000

Title: *Multi-Channel RFSoC-Based Receiver*
PIs: Nathan Goodman and Mark Yeary
Role: Lead Principal Investigator
Sponsor: AFRL (via DEC – prime contractor)
Dates: 11/08/2019 – 10/08/2021
Responsibility: 75%
Total Award Amount: $453,000

Title: *Modeling, Image Formation, and Performance Evaluation for Distributed SAR*
PI: Nathan Goodman
Role: Principal Investigator
Sponsor: DARPA (Via AnTrust – prime contractor)
Dates: 8/3/2020 – 9/30/2021
Responsibility: 100%
Total Award Amount: $99,990

Title: *Space-borne Antennas & Circuits for Condensed Radars and STEM (SPACERS)*
PIs: Hjalti Sigmarsson, Mark Yeary, Jessica Ruyle, Caleb Fulton, Jeffrey Basara, & Nathan Goodman
Role: Co-Investigator
Sponsor: NASA
Dates: 6/1/2018 – 5/31/2021
Responsibility: 5%
Total Award Amount: $600,000

Title: *Technologies for Next-Generation Conformal and Reconfigurable Radar Systems*
PIs: Nathan Goodman, Jessica Ruyle, Hjalti Sigmarsson, Mark Yeary, Jorge Salazar-Cerreno, Caleb Fulton, Robert Palmer
Role: Lead Principal Investigator
Sponsor: Office of Naval Research (ONR)
Dates: 2/1/2018 – 3/30/2021
Responsibility: 19%
Total Award Amount: $3,531,820

Title: *Miniaturized SAR Hardware for Airborne Applications*
PIs: Jay McDaniel, Hjalti Sigmarsson, and Nathan Goodman
Role: Co-Investigator
Sponsor: Sandia National Laboratories
Dates: 4/17/2020 – 9/30/2020
Responsibility: 25%
Total Award Amount: $110,719

Title: *SBIR: Robust, Light-Weight Bistatic Weather Radar*
PIs: Davide Bodine, Tian-You Yu, and Nathan Goodman
Role: Co-Investigator
Sponsor: Air Force Research Laboratory (via HELIOS, prime contractor)
Dates: 11/15/2018 – 3/08/2019
Responsibility: 10%
Total Award Amount: $44,866

Title: *Radar Gap Analysis and Application of REMAR Components*
PIs: Caleb Fulton, Hjalti Sigmarsson, Nathan Goodman, and Mark Yeary
Role: Co-Investigator
Sponsor: Air Force Research Laboratory (via Rockwell Collins, prime contractor)
Dates: 10/01/2015 – 3/26/2017
Responsibility: 15%
Total Award Amount: $49,777

Title: *Center for Surveillance Research I/UCRC Planning Grant*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: National Science Foundation
Dates: 9/15/2015 – 8/31/2016
Responsibility: 100%
Total Award Amount: $14,545

Title: *MoBiDC Design and Demonstration, Phase II*
PIs: Nathan Goodman, Mark Yeary, and Caleb Fulton
Role: Lead Principal Investigator
Sponsor: AFRL (via DEC – prime contractor)
Dates: 4/13/2015 – 7/30/2016
Responsibility: 50%
Total Award Amount: $649,978

Title: *Advanced Digital Radar Techniques for the Next Generation of Synthetic Aperture Radar (SAR) and Student Training*
PIs: Victoria Snowden, Mark Yeary, Jessica Ruyle, Nathan Goodman, and Caleb Fulton
Role: Co-Investigator
Sponsor: NASA
Dates: 12/26/2012 – 12/25/2015
Responsibility: 20%
Total Award Amount: $900,000

Title: *Mobile Bistatic Radar Design and Demonstration*
PIs: Nathan Goodman, Mark Yeary, and Caleb Fulton
Role: Lead Principal Investigator
Sponsor: AFRL (via DEC – prime contractor)
Dates: 9/24/2014 – 2/23/2015
Responsibility: 45%
Total Award Amount: $199,989

Title: *Knowledge Enhanced Compressive Measurement (KECoM)*
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 – 11/20/14
Responsibility: 32.5% (Responsibility for OU sub-contract: 100%)
Total Award Amount: $3,603,312 (Amount sub-contracted to OU: $759,133)

Title: *Adaptive Exploitation of High-Frame-Rate Radar Imagery for Detection and Tracking of Dismounts*
PIs: Nathan Goodman, Yan (Rockee) Zhang, and Mark Yeary
Role: Lead Principal Investigator
Sponsor: DARPA
Dates: 1/24/2013 – 3/31/2014
Responsibility: 65%
Total Award Amount: $171,818

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: *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: *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: *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: *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: Research and Development of Advanced Radar LFM-Optimized Waveforms
PIs: Nathan Goodman and Justin Metcalf
Role: Lead Principal Investigator
Sponsor: KBR
Dates: 5/1/2025 – 12/31/2025
Responsibility: 50%
Total Award Amount: $59,995

Title: Radar Volumetric Fill Profile Detection
PIs: Jorge Salazar-Cerreno, Nathan Goodman, and Caleb Fulton
Role: Co-Investigator
Sponsor: John Deere Company
Dates: 10/3/2024 – 9/30/2025
Responsibility: 30%
Total Award Amount: $287,021

Title: *Radar Consortium FY25*
PIs: Hjalti Sigmarsson, Russell Kenney, Mark Yeary, and Nathan Goodman
Role: Co-Investigator
Sponsor: Honeywell FM&T, Kansas City Plant
Dates: 10/22/2024 – 8/31/2025
Responsibility: 15%
Total Award Amount: $68,000

Title: *Radar Consortium FY24: The Future of Airborne Radar*
PIs: Hjalti Sigmarsson, Mark Yeary, and Nathan Goodman
Role: Co-Investigator
Sponsor: Honeywell FM&T, Kansas City Plant
Dates: 3/07/2024 – 8/31/2024
Responsibility: 20%
Total Award Amount: $357,000

Title: *Radar Synchronization Testbed*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Epirus Systems
Dates: 5/23/2022 – 9/30/2023
Responsibility: 100%
Total Award Amount: $71,275

Title: *Radar Consortium FY23: The Future of Airborne Radar*
PIs: Jay McDaniel, Hjalti Sigmarsson, Mark Yeary, and Nathan Goodman
Role: Co-Investigator
Sponsor: Honeywell FM&T, Kansas City Plant
Dates: 2/03/2023 – 8/31/2023
Responsibility: 15%
Total Award Amount: $372,000

Title: *The Future of Airborne Radar (FY22): Synthetic Aperture Radar Imaging, Frequency-Agile Electronics, Distributed Radar Sensor Networks, and Multi-IMU Fusion for PNT*
PIs: Jay McDaniel, Hjalti Sigmarsson, Mark Yeary, and Nathan Goodman
Role: Co-Investigator
Sponsor: Honeywell FM&T, Kansas City Plant
Dates: 12/14/2021 – 11/30/22
Responsibility: 15%
Total Award Amount: $320,000

Title: *Radar Consortium FY21 - Next Generation SAR, Frequency-Agile Electronics, and Sensor Fusion Techniques for PNT*
PIs: Jay McDaniel, Hjalti Sigmarsson, Mark Yeary, Nathan Goodman, and Caleb Fulton
Role: Co-Investigator
Sponsor: Honeywell FM&T, Kansas City Plant
Dates: 12/14/2020 – 11/30/21
Responsibility: 10%
Total Award Amount: $390,000

Title: *Project Boomer 2019 – STAR for Digital Phased Arrays*
PIs: Nathan Goodman and Caleb Fulton
Role: Principal Investigator
Sponsor: L3 Advanced Systems and Technologies
Dates: 04/01/2019 – 12/31/2020
Responsibility: 50%
Total Award Amount: $81,266

Title: *Radar Consortium FY20-Next Generation SAR Architectures & Integrated RF Technologies*
PIs: Jay McDaniel, Hjalti Sigmarsson, Mark Yeary, Caleb Fulton, and Nathan Goodman
Role: Co-Investigator
Sponsor: Honeywell FM&T, Kansas City Plant
Dates: 12/01/2019 – 11/30/2020
Responsibility: 10%
Total Award Amount: $290,000

Title: *Algorithms for Efficient, Wide-FOV SAR-GMTI*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Wright State University – Center for Surveillance Research (CSR)
Dates: 9/1/2018 – 5/31/2020
Responsibility: 100%
Total Award Amount: $79,860

Title: *Radar 2021*
PIs: Hjalti Sigmarsson, Mark Yeary, Nathan Goodman, and Caleb Fulton
Role: Co-Investigator
Sponsor: Honeywell FM&T, Kansas City Plant
Dates: 2/24/2016 – 11/30/2019
Responsibility: 8.7%
Total Award Amount: $722,098

Title: *Testing and Algorithm Development for a Nyquist-Folding Broadband Receiver*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Honeywell FM&T, Kansas City Plant
Dates: 4/22/2016 – 9/01/2017
Responsibility: 100%
Total Award Amount: $226,260

Title: *Increased Imaging Area for SAR Wide-Area Surveillance*
PIs: Nathan Goodman
Role: Principal Investigator
Sponsor: Raytheon Co., Tucson, AZ
Dates: 11/14/2011 – 8/31/2013
Responsibility: 100%
Total Award Amount: $80,000

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

Title: *Real-Beam Superresolution*
PIs: Pitu Mirchandani, Nathan Goodman
Role: Co-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:

N.A. Goodman and C. Schone, "Performance comparison of staggered-PRI coherent processing versus binary detection via the modified RIP," in preparation for submission to *IEEE Trans. Radar Systems*.

C. Schone and **N.A. Goodman**, "A modified restricted isometry property for waveform assessment in the presence of correlated interference," submitted to *IEEE Trans. Radar Systems*.

C. Schone and **N.A. Goodman**, "SAR image formation via subapertures and 2D backprojection," in revision for *IEEE Trans. Radar Systems*.

Y. Gu and **N.A. Goodman**, "Information-theoretic waveform design for Gaussian mixture radar target profiling," *IEEE Trans. Aerospace and Electronic Systems*, vol. 55, no. 3, pp. 1528-1536, June 2019.

D. Lucking and **N.A. Goodman**, "Resource allocation for dynamic parameter estimation in parallel channels," *IET Radar, Sonar & Navigation*, vol. 13, no. 4, pp. 550-557, April 2019.

A. Charlish, K. Bell, **N.A. Goodman**, and G.E. Smith, "Guest editorial: cognitive radar," *IET Radar, Sonar & Navigation*, vol. 12, no. 12, pp. 1361-1362, December 2018.

F. Liu, M.W. Marcellin, **N.A. Goodman**, and A. Bilgin, "Compressive detection of direct sequence spread spectrum signals," *Electronics Letters*, vol. 54, no. 24, pp. 1379-1381, November 2018.

J. Lievsay and **N.A. Goodman**, "Modeling three-dimensional passive STAP with heterogeneous clutter and pulse diversity waveform effects," *IEEE Trans. Aerospace and Electronic Systems*, vol. 54, no. 2, pp. 861-872, April 2018.

Y. Gu and **N.A. Goodman**, "Information-theoretic compressive sensing kernel optimization and Bayesian Cramer-Rao bound for time delay estimation," *IEEE Trans. Signal Processing*, vol. 65, no. 17, pp. 4525-4537, September 1, 2017.

H.S. Kim, **N.A. Goodman**, C. Lee, and S. Yang, "Improved Waveform Design for Radar Target Classification," *Electronics Letters*, vol. 53, no. 13, pp. 879-881, June 22, 2017.

H.S. Kim, **N.A. Goodman**, J.H. Bae, and C. Lee, "Classification waveform optimization for MIMO radar," *IEICE Communications Express*, vol. 6, no. 8, pp. 501-506, August 2017.

Z. Shi, C. Zhou, Y. Gu, **N.A. Goodman**, and F. Qu, "Source estimation using coprime array: a sparse reconstruction perspective," *IEEE Sensors Journal*, vol. 17, no. 3, pp. 755-765, February 1, 2017.

F. Liu, M.W. Marcellin, **N.A. Goodman**, and A. Bilgin, "Compressive Sampling for Detection of Frequency-Hopping Spread Spectrum Signals," *IEEE Trans. Signal Processing*, vol. 64, no. 21, pp. 5513-5524, November 1, 2016.

Z. Dunn, M. Yeary, C. Fulton, and **N.A. Goodman**, "Wideband digital predistortion of solid-state radar amplifiers," *IEEE Trans. Aerospace and Electronic Systems*, vol. 52, no. 5, pp. 2452-2466, October 2016.

L. Potter and **N.A. Goodman**, "Pitfalls and possibilities of radar compressive sensing" *Applied Optics*, vol. 54, no. 8, pp. C1 – C13, March 10, 2015. (INVITED)

Y. Gu, **N.A. Goodman**, and A. Ashok, "Radar target profiling and recognition based on TSI-optimized compressive sensing kernel," *IEEE Trans. Signal Processing*, vol. 62, no. 12, pp. 3194-3207, June 15, 2014.

Y. Gu, **N.A. Goodman**, S. Hong, and Y. Li, "Robust adaptive beamforming based on interference covariance matrix sparse reconstruction," *Signal Processing*, vol. 96, pp. 375-381, March 2014.

R.A. Romero and **N.A. Goodman**, "Cognitive radar network: cooperative adaptive beamsteering for integrated search-and-track application," *IEEE Trans. Aerospace and Electronic Systems*, vol. 49, no. 2, pp. 915-931, April 2013.

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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.

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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