Russell H. Kenney, Ph.D.

The University of Oklahoma
School of Electrical and Computer Engineering
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Advanced Radar Research Center
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Norman, OK 73019
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Education

University of Oklahoma August 2024
Ph.D. in Electrical & Computer Engineering
Department of Defense - National Defense Science
and Engineering Graduate (NDSEG) Fellow
Dissertation title: "An Approach to Simultaneous Wireless Synchronization and Navigation for Mobile Distributed Networks of Radar Systems"

University of Oklahoma May 2020
M.S. in Electrical & Computer Engineering
Thesis title: "Design and Implementation of an All-COTS Digital Back-End for a Pulse-Doppler Synthetic Aperture Radar"

University of Oklahoma May 2019
B.S. in Computer Engineering (*Summa Cum Laude*)

Research Interests

Radar system design for defense, commercial, and remote sensing applications; distributed coherent radar architectures for ground-based and airborne applications; novel PNT solutions for airborne radar imaging applications; radar signal processing and imaging; radar test equipment; RF and microwave component design.

Experience

Assistant Professor August 2024 – Present
The University of Oklahoma, School of Electrical and Computer Engineering, Norman, OK

Instructor August 2022 – December 2022
The University of Oklahoma, Advanced Radar Research Center (ARRC), Norman, OK

Graduate Research Assistant August 2019 – August 2024
The University of Oklahoma, Advanced Radar Research Center (ARRC), Norman, OK

Undergraduate Research Assistant January 2018 – May 2019
The University of Oklahoma, Advanced Radar Research Center (ARRC), Norman, OK

Courses Taught

Signals and Systems (ECE 3793)	Fall 2022
Signals and Systems (ECE 3793)	Spring 2025
Independent Study: Radar Modeling and Imaging (ECE 5990)	Spring 2025
State Estimation (ECE 4973/5973)	Fall 2025
Independent Study: Radar Modeling and Imaging (ECE 3990/5990)	Fall 2025
Signals and Systems (ECE 3793)	Spring 2026

Mentoring Experience

Graduate Research Project Mentor — August 2019 – August 2024
The University of Oklahoma, Norman, OK

HKN Core Class Review Leader — August 2018 – May 2023
The University of Oklahoma, Norman, OK

HKN Core Class Review Coordinator — August 2019 – May 2020
The University of Oklahoma, Norman, OK

Professional Memberships

Institute of Electrical and Electronics Engineers (IEEE)
Student Member, 2018 – 2024
Member, 2024 – Present

Member of IEEE Microwave Theory and Technologies Society

Member of IEEE Aerospace and Electronic Systems Society

Member of IEEE Instrumentation and Measurement Society

Member of IEEE Geoscience and Remote Sensing Society

IEEE Eta Kappa Nu (HKN) Honor Society
Member, 2018 – Present

Tau Beta Pi Engineering Honor Society
Member, 2023 – Present

School Service

Faculty Advisor, IEEE MTT-S Student Chapter	August 2024 – Present
Faculty Advisor, IEEE HKN Student Chapter	February 2025 – Present
Committee Member, ECE Website Committee	November 2025 – Present

University Service

Co-Chair, ARRC Distinguished Radar Lecture Series Committee	September 2024 – Present
Co-Chair, ARRC Student Recruitment Committee	October 2024 – Present

Professional Service

IEEE MTT-S TC-24: Microwave/mm-Wave Radar, Sensing and Array Systems Committee
Affiliate Member June 2026 – Present

Industry Paper Competition Chair – Radio Frequency Systems Applications (RFSA) Symposium/International Microwave Symposium (IMS) 2027 May 2027

Poster Session Chair – Wireless and Microwave Technology Conference (WAMICON) 2026 April 2026

Session Chair – Radio Frequency Systems Applications (RFSA) Symposium/International Microwave Symposium (IMS)
Session: Applications of Radar, Sensing, and Imaging Systems June 2026

Session Chair – Wireless and Microwave Technology Conference (WAMICON)
Session: Advancements in RF Applications for Space Technologies April 2025
Session: Advancements in Radar Technologies April 2025
Session: Advancements in Radar Technologies April 2026
Session: Antennas and Passive Components April 2026

Peer Reviewer:

Journals:

IEEE Transactions on Radar Systems (TRS)

IEEE Transactions on Aerospace and Electronic Systems (TAES)

IEEE Transactions on Microwave Theory and Techniques (TMTT)

– With Special Distinction (2024)

IEEE Transactions on Geoscience and Remote Sensing (TGRS)

IEEE Transactions on Communications (TCOM)

IEEE Transactions on Industrial Informatics (TII)

IEEE Journal of Microwaves (JMW)

IET Radar, Sonar, & Navigation (RSN)

IET Electronics Letters (EL)

Wiley International Journal of Circuit Theory and Applications

Wiley International Journal of RF and Microwave Computer-Aided Engineering

ION Navigation

Conferences:

IEEE International Radar Conference (RADAR) (2023, 2025)

IEEE Radar Conference (RadarConf) (2024, 2026)

IEEE Wireless and Microwave Technology Conference (WAMICON) (2024 – 2026)

IEEE International Microwave Symposium (IMS) (2026)

Additional Activities

IEEE MTT-S Student Chapter, University of Oklahoma — August 2019 – August 2024
Vice President – August 2020 – August 2022
President – August 2022 – September 2023

IEEE Eta Kappa Nu Honor Society, University of Oklahoma — August 2017 – August 2024
Corresponding Secretary – August 2018 – May 2019
Mentorship Coordinator – August 2019 – May 2020

Honors and Awards

Gallogly College of Engineering (GCoE) Dissertation Excellence Award, University of Oklahoma (August 2024)

Advanced Radar Research Center Journal Paper Award, University of Oklahoma (February 2024)

IEEE AESS Travel Award (November 2023)

Advanced Radar Research Center Journal Paper Award, University of Oklahoma (September 2023)

Advanced Radar Research Center Journal Paper Award, University of Oklahoma (August 2023)

Honorable Mention for Poster Presenation in Electrical Engineering, 4^{th} Annual NDSEG Conference, San Antonio, TX (August 2023)

Dolese Teaching Fellowship, University of Oklahoma (August 2022)

IEEE International Microwave Symposium PhD Student Sponsorship Initiative (June 2022)

Advanced Radar Research Center Journal Paper Award, University of Oklahoma (January 2022)

Advanced Radar Research Center Student of the Month, University of Oklahoma (April 2021)

National Defense Science and Engineering Graduate (NDSEG) Fellowship, U.S. Department of Defense, Office of Naval Research (March 2021)

Advanced Radar Research Center Journal Paper Award, University of Oklahoma (October 2020)

Outstanding Senior in Computer Engineering, University of Oklahoma (April 2019)

IEEE R5 Regional Student Paper Competition, 2^{nd} place, Lafayette, LA (April 2019)

IEEE R5 Area Student Paper Competition, 1^{st} place (January 2019)

Undergraduate Research Opportunity Program Grant, University of Oklahoma (November 2018)

Advanced Radar Research Center Conference Paper Award, University of Oklahoma (November 2018)

IEEE R5 Local Student Paper Competition, 1^{st} place, Oklahoma City, OK (November 2018)

David W. Levy Prize Finalist, University of Oklahoma (June 2016)

Sponsored Research Projects

[1] **Title:** Multi-Aperture Optimized Synthetic Aperture Radar Autofocus and Imaging Correction (MOSAIC)
Sponsor: Defense Advanced Research Projects Agency
PIs: Russell Kenney
Award Amount: $499,638.00 **Period of Performance:** 05/06/2026 – 05/05/2028
Role: PI **Percent Responsibility:** 100% ($499,638.00)

Pending

[1] **Title:** Next Generation RF System Concept
Sponsor: Office of Naval Research, Department of Defense
PIs: Justin Metcalf, Nathan Goodman, Mark Yeary, **Russell Kenney**, Caleb Fulton, Jessica Ruyle, Hjalti Sigmarsson, and Yan Zhang
Award Amount: $34,440,071.00 **Period of Performance:** 10/01/2026 – 09/31/2031
Role: Co-PI **Percent Responsibility:** 15% ($5,166,010.65)

[2] **Title:** STTR: Signal of Opportunity Survey and RF Phenomenology Study for Adaptive and Intelligent Space (AIS) Systems
Sponsor: Wildstar LLC
PIs: Russell Kenney
Award Amount: $87,158.00 **Period of Performance:** 08/10/2026 – 11/09/2026
Role: Co-PI **Percent Responsibility:** 100% ($87,158.00)

[3] **Title:** Distributed RF Concepts for Future Electromagnetic Spectrum Operations
Sponsor: Office of Naval Research, Department of Defense
PIs: Justin Metcalf, Nathan Goodman, **Russell Kenney**, Mark Yeary, Hjalti Sigmarsson, Jessica Ruyle, Jorge Salazar, Yan Zhang, Tian You Yu, David Schvartzman, Caleb Fulton, Moritz Sebastian Graefrath, and Mark Raymond
Award Amount: $19,343,784.00 **Period of Performance:** 01/31/2026 – 01/30/2029
Role: Co-PI **Percent Responsibility:** 10% ($1,934,378.40)

[4] **Title:** DURIP: UAV-Based Radios for Developing Next-Generation Airborne and Distributed Radar Systems
Sponsor: Office of Naval Research, Department of Defense
PIs: Russell Kenney
Award Amount: $447,885.00 **Period of Performance:** 12/01/2025 – 11/30/2026
Role: PI **Percent Responsibility:** 100% ($447,885.00)

Completed

[1] **Title:** Radar Consortium FY25
Sponsor: Kansas City National Security Campus
PIs: Hjalti Sigmarsson, **Russell Kenney**, Mark Yeary, and Nathan Goodman
Award Amount: $68,000 **Period of Performance:** 10/22/2024 – 08/31/2025
Role: Co-PI **Percent Responsibility:** 35% ($23,800.00)

[2] **Title:** Fusion-Based State Estimation for Localization and Synchronization of Distributed Radar (Modified Award)
Sponsor: Office of Naval Research
PIs: Russell Kenney and Justin Metcalf
Award Amount: $311,001.51 **Period of Performance:** 11/01/2024 – 08/31/2025
Role: PI **Percent Responsibility:** 80% ($248,801.21)

[3] **Title:** Fusion-Based State Estimation for Localization and Synchronization of Distributed Radar (Original Award)
Sponsor: Office of Naval Research
PIs: Jay McDaniel, Justin Metcalf, and **Russell Kenney**
Award Amount: $414,143.49 **Period of Performance:** 08/01/2022 – 10/31/2024
Role: Co-PI **Percent Responsibility:** 0% (Awarded as grad student)

[4] **Title:** Military Utility Assessment for an Aerial Autonomous ISR/T & EW Network Organic to the Surface Fleet
Sponsor: Systems Planning and Analysis Inc.
PIs: Justin Metcalf and **Russell Kenney**
Award Amount: $79,722.00 **Period of Performance:** 07/07/2023 – 9/30/2024
Role: Co-PI **Percent Responsibility:** 0% (Awarded as grad student)

[5] **Title:** Ku-Band Synthetic Aperture Radar Emulator
Sponsor: Sandia National Laboratories
PIs: Jay McDaniel, **Russell Kenney**, Hjalti Sigmarsson, and Nathan Goodman
Award Amount: $213,959.00 **Period of Performance:** 12/03/2021 – 09/30/2022
Role: Co-PI **Percent Responsibility:** 0% (Awarded as grad student)

Publications and Presentations

Theses

[1] **R. H. Kenney**, "Design and Implementation of an All-COTS Digital Back-End for a Pulse-Doppler Synthetic Aperture Radar," Master's Thesis, University of Oklahoma, 2020.

[2] **R. H. Kenney**, "An Approach to Simultaneous Wireless Synchronization and Navigation for Mobile Distributed Networks of Radar Systems," Ph.D. Dissertation, University of Oklahoma, 2024.

Journal Papers

[1] J. M. Knowles, **R. H. Kenney**, and H. S. Sigmarsson, "Generalized Theory and Realization of Reconfigurable Bandpass Filtering Equalizers," in *IEEE Transactions on Microwave Theory and Techniques*, 2026. (early access)

[2] **R. H. Kenney**, J. G. Metcalf, and J. W. McDaniel, "Concept and Theoretical Performance Analysis for Decentralized Digital Synchronization in Distributed Radar Sensor Networks," in *IET Radar, Sonar, & Navigation*, vol. 19, no. 1, pp. e12687, 2025.

[3] **R. H. Kenney**, R. E. Jarvis, H. H. Sigmarsson, and J. W. McDaniel, "Microwave Filter Tuning Using Concepts from the Unscented Kalman Filter," in *IEEE Transactions on Microwave Theory and Techniques*, vol. 72, no. 4, pp. 2391-2413, April 2024.

[4] **R. H. Kenney**, J. G. Metcalf, and J. W. McDaniel, "Wireless Distributed Frequency and Phase Synchronization for Mobile Platforms in Cooperative Digital Radar Networks," in *IEEE Transactions on Radar Systems*, vol. 2, pp. 268-287, 2024.

[5] B. M. Sun, **R. H. Kenney**, M. B. Yeary, H. H. Sigmarsson, and J. W. McDaniel, "Reduced Navigation Error Using a Multi-sensor Fusion Technique and its Application in Synthetic Aperture Radar Imaging," in *IEEE Journal of Microwaves*, vol. 4, no. 1, pp. 86-100, Jan. 2024.

[6] **R. H. Kenney** and J. W. McDaniel, "Cooperative Navigation of Mobile Radar Sensors Using Time-of-Arrival Measurements and the Unscented Kalman Filter," in *IEEE Transactions on Radar Systems*, vol. 1, pp. 435-447, 2023.

[7] **R. H. Kenney**, J. L. Salazar-Cerreno and J. W. McDaniel, "Two-Dimensional Beam Pattern Synthesis for Phased Arrays With Arbitrary Element Geometry via Magnitude Least Squares Optimization," in *IEEE Journal of Microwaves*, vol. 2, no. 2, pp. 337-346, April 2022.

[8] B. M. Sun, **R. H. Kenney**, M. B. Yeary, H. H. Sigmarsson, and J. W. McDaniel, "An Up-Sampled Particle Fusion Technique and Its Application in Synthetic Aperture Radar Imaging," in *IEEE Journal of Microwaves*, vol. 2, no. 1, pp. 108-122, Jan. 2022.

[9] **R. H. Kenney**, C. J. Walker, H. H. Sigmarsson, and J. W. McDaniel, "A Varactor-Based Tunable Combline Bandpass Filter Using Suspended Integrated Stripline," in *IEEE Journal on Miniaturization for Air and Space Systems*, vol. 2, no. 3, pp. 112-116, Sept. 2021.

Conference Papers

[1] J. M. Knowles, **R. H. Kenney**, and H. H. Sigmarsson, "Even-Order Filtering Equalizer Design Considerations," *2026 IEEE 27th Wireless and Microwave Technology Conference (WAMICON)*, Clearwater, FL, USA, 2026, pp. 1-4. (accepted)

[2] **R. H. Kenney**, J. G. Metcalf, and J. W. McDaniel, "Digital Synchronization of Distributed Radar Networks Using the Unscented Kalman Filter," *2025 IEEE Radar Conference (RadarConf25)*, Krakow, Poland, 2025, pp. 1-6.

[3] J. M. Knowles, **R. H. Kenney**, J. W. McDaniel, and H. H. Sigmarsson, "Design of a Generalized Chebyshev Filter with a Sloped Passband," *2025 IEEE 26th Wireless and Microwave Technology Conference (WAMICON)*, Cocoa Beach, FL, USA, 2025, pp. 1-4.

[4] **R. H. Kenney** and J. W. McDaniel, "All-Digital Carrier Frequency Synchronization for Distributed Radar Sensor Networks," *2024 IEEE/MTT-S International Microwave Symposium - IMS 2024*, Washington, DC, USA, 2024, pp. 1-4.

[5] B. D. Carlton, **R. H. Kenney**, J. G. Metcalf, and J. W. McDaniel, "Parameter Estimation of Pseudo-Random Optimized Dolph-Chebyshev Window Waveforms using the Gauss-Newton Method," *2024 IEEE Radar Conference (RadarConf24)*, Denver, CO, USA, 2024, pp. 1-6.

[6] **R. H. Kenney**, J. G. Metcalf and J. W. McDaniel, "Decentralized Digital Clock Drift Compensation in Distributed Radar Sensor Networks Through Single-Tone Frequency Broadcasts," *2023 IEEE International Radar Conference (RADAR)*, Sydney, Australia, 2023, pp. 1-6.

[7] **R. H. Kenney**, K. Konyalioglu, M. Yeary, H. H. Sigmarsson, and J. W. McDaniel, "An All-COTS High Sampling Frequency Pulse-Doppler Imaging Radar," *2020 IEEE Radar Conference (RadarConf20)*, Florence, Italy, 2020, pp. 1-6.

[8] **R. H. Kenney**, B. M. Sun, M. B. Yeary, H. H. Sigmarsson, and J. W. McDaniel, "Clock Incoherence in All-Digital Radar Back Ends," *2019 Government Microcircuit Applications and Critical Technology Conference (GOMACTech19)*, Albuquerque, NM, USA, 2019, pp. 1-5.

Abstracts

[1] C. P. Kieu, J. G. Metcalf, and **R. H. Kenney**, "gr:harmonia: A GNU Radio-Based Tool for Synchronization of Software-Defined Radios in a Distributed Radar Network," *GNU Radio Conference 2025*, Everett, WA, 2025.

Presentations

[1] **R. H. Kenney**, "Implementation Challenges in Airborne Distributed Radar: Navigation, Synchronization, and Signal Processing," *ECE Department Graduate Seminar Series*, Texas Tech University, Lubbock, TX, October 2024. (Invited Lecture)

[2] **R. H. Kenney**, J. Knowles, C. DeFrancesco, A. Gonzales, and J. W. McDaniel, "The Future of Airborne Radar: High-Performance and Low-SWaP Components, Systems, and Architectures for Advanced Radar Applications," *Kansas City National Security Campus - Radar Consortium*, University of Oklahoma, Norman, OK, February 2024.

[3] **R. H. Kenney**, "Simultaneous Navigation and Synchronization: An Approach to Mobile Distributed Radar Sensor Network Synchronization and Position Estimation," 4^{th} *Annual NDSEG Conference*, San Antonio, TX, August 2023.

[4] **R. H. Kenney**, A. Gonzales, C. DeFrancesco, and H. H. Sigmarsson, "The Future of Airborne Radar: High-Performance and Low-SWaP Components, Systems, and Architectures for Advanced Radar Applications," *Kansas City National Security Campus - Radar Consortium*, University of Nebraska-Lincoln, Lincoln, NE, February 2023.

[5] **R. H. Kenney**, J. Knowles, and J. W. McDaniel, "The Future of Airborne Radar: Progress in Distributed Radar Navigation and Synchronization," *Kansas City National Security Campus - Radar Consortium*, Kansas State University, Manhattan, KS, August 2022.

[6] **R. H. Kenney**, "Advanced Radar and SAR Topics: System Design, Signal Processing, Distributed Radar PNT, mmWave SAR, and SAR Autofocus" *Half-Day Training Workshop*, Kansas City National Security Campus, Kansas City, MO, April 2022. (Invited Lecture)

[7] **R. H. Kenney**, J. Knowles, and J. W. McDaniel, "The Future of Airborne Radar: Miniaturized Ku-Band Synthetic Aperture Radar," *Kansas City National Security Campus - Radar Consortium*, University of Kansas, Lawrence, KS, February 2022.

[8] **R. H. Kenney** and J. W. McDaniel, "The Future of Airborne Radar: High-Performance and Low-SWaP Components and Systems for Advanced Radar Applications," *Kansas City National Security Campus - Cross-Consortia All-Hands Meeting*, Kansas City National Security Campus, Kansas City, MO, July 2021. (Invited Lecture)

[9] **R. H. Kenney** and J. W. McDaniel, "Miniaturized Ku-Band Synthetic Aperture Radar," *Kansas City National Security Campus - Radar Consortium*, Kansas State University, Manhattan, KS, February 2021.

[10] **R. H. Kenney**, "Beam Pattern Synthesis Techniques and User Interface for Planar and Arbitrary Arrays," *2020 Phased Array Antenna Lecture Series*, University of Oklahoma, Norman, OK, December 2020.

[11] **R. H. Kenney**, "A Low-SWaP Ku-Band SAR Demonstrator for Un-Manned Aerial Vehicle Applications," *Gallogly College of Engineering Graduate Poster Fair - Emerging Research*, University of Oklahoma, Norman, OK, November 2020.

[12] **R. H. Kenney** and J. W. McDaniel, "Design and Testing of an All-COTS Synthetic Aperture Radar Digital Back-end," *Kansas City National Security Campus - Radar Consortium*, Michigan State University, Lansing, MI, February 2020.

[13] **R. H. Kenney** and J. W. McDaniel, "Development of an All-COTS Synthetic Aperture Radar Digital Back-end and Reconfigurable Microwave Components," *Kansas City National Security Campus - Radar Consortium*, National Security Campus, Kansas City, MO, July 2019.

[14] **R. H. Kenney**, "Tunable Suspended Integrated Stripline Filters," *Annual RF & Microwave Filter Design Symposium*, University of Oklahoma, Norman, OK, May 2019.

[15] **R. H. Kenney**, "Clock Incoherence in All-Digital Radar Back Ends," *IEEE R5 Regional Student Paper Competition*, Lafayette, LA, April 2019.

[16] **R. H. Kenney**, "Clock Incoherence in All-Digital Radar Back Ends," *IEEE R5 Local Student Paper Competition*, Oklahoma City, OK, November 2018.

Students Advised

Current Students:

M.S. Students

[1]	**Alexa Adkisson, ECE**	**M.S. Committee Chair, August 2024 – Present**
[2]	Bryce McDaniel, ECE	M.S. Committee Member, August 2024 – Present
[3]	William Van Houten, ECE	M.S. Committee Member, August 2024 – Present
[4]	Caleb Nelson, ECE	M.S. Committee Member, December 2025 – Present
[5]	**Adam Eschler, ECE**	**M.S. Committee Chair, January 2026 – Present**
[6]	**Justin Lewis, ECE**	**M.S. Committee Chair, January 2026 – Present**
[7]	Ahmed Ahmed, ECE	M.S. Committee Member, April 2026 – Present
[8]	**Gershon Fox, ECE**	**M.S. Committee Chair, May 2026 – Present**

Ph.D. Students

[1]	**Benton Smith, ECE**	**Ph.D. Committee Chair, January 2025 – Present**
[2]	Luis Felipe Moncada Calmet, ECE	Ph.D. Committee Member, May 2025 – Present

[3] Arman Yagci, Math — Ph.D. Committee Member, October 2025 – Present

[4] Bobby Saba, Meteorology — Ph.D. Committee Member, February 2026 – Present

Graduated/Completed Students:

Undergraduate Students

[1] Mason Pendley, ECE — August 2025 – May 2026

[2] Gershon Fox, ECE — November 2025 – May 2026

[3] Michael Falcone, ECE — August 2024 – May 2025

[4] Adam Eschler, ECE — January 2025 – December 2025

[5] Justin Lewis, ECE — January 2025 – December 2025

[6] Jordan Bratcher, ECE — August 2025 – December 2025

[7] Ethan Fletcher, ECE — August 2025 – December 2025

[8] Teddy Winter, ECE — August 2025 – December 2025

M.S. Students

[1] MacKenzie Kelsoe, ECE — M.S. Committee Member, April 2025 – May 2026
Thesis: Investigation of Spatial and Frequency Filtering Antenna for Congested Spectral Sensing

[2] Samuel Espinoza Flores, ECE — M.S. Committee Member, May 2025 – May 2026
Thesis: Design and Realization of a Tunable Microstrip Bandstop Filter Based on Characteristic-Polynomial Transformation

[3] **Michael Falcone, ECE — Non-Thesis Advisor, August 2025 – May 2026**

[4] **Cody Kieu, ECE — M.S. Committee Chair, August 2024 – December 2025**
Thesis: Digital Synchronization of Software-Defined Radios in a Wireless Distributed Radar Network

[5] Sam Roach, ECE — M.S. Committee Member, August 2024 – December 2025
Thesis: CFAR Detector Performance in Non-Homogeneous Interence Environments

[6] **Cora DeFrancesco, ECE — M.S. Committee Chair, August 2024 – July 2025**
Thesis: Development of a Star Tracker System for Distributed Navigation

[7] Lucia Torres, ECE — M.S. Committee Member, August 2024 – July 2025
Thesis: Low-Cost Radar Techniques for Congested Environments