

# Jay W. McDaniel, Ph.D.

## *Department Address*

University of Oklahoma  
School of Electrical & Computer Engineering  
110 W. Boyd Street  
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## *Work Address*

Advanced Radar Research Center  
Radar Innovations Laboratory  
3190 Monitor Avenue  
Norman, OK, 73019  
<https://www.rrrc.ou.edu>

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## **Education**

*Ph.D.*, August 2018

The University of Oklahoma, Electrical & Computer Engineering

Dissertation title:

“Self-Packaged and Low-Loss Suspended Integrated Strip-line Filters for Next Gen. Systems”

*M.Sc.*, May 2015

The University of Kansas, Electrical Engineering & Computer Science

*B.Sc.*, May 2013

Kansas State University, Electrical & Computer Engineering

## **Experience**

*Assistant Professor*, August 2018 – Present

The University of Oklahoma, School of Electrical & Computer Engineering, Norman, OK

*Primary Instructor*, August 2017 – December 2017

The University of Oklahoma, School of Electrical & Computer Engineering, Norman, OK

*Graduate Research Assistant*, July 2016 – August 2018

The University of Oklahoma, Advanced Radar Research Center (ARRC), Norman, OK

*Radar Engineer*, May 2015 – July 2016

Kansas City National Security Campus (Honeywell FM&T), Kansas City, MO

*Graduate Research Assistant*, July 2013 – May 2015

The University of Kansas, Center for Remote Sensing of Ice Sheets (CReSIS), Lawrence, KS

*Undergraduate Physics Laboratory Coordinator*, August 2012 – May 2013

Kansas State University, Physics Department, Manhattan, KS

*Primary Physics Laboratory Instructor*, August 2011 – May 2012

Kansas State University, Physics Department, Manhattan, KS

*Secondary Physics Laboratory Instructor*, January 2011 – May 2011

Kansas State University, Physics Department, Manhattan, KS

## **Research Interests**

Electromagnetic field theory, electromagentic modeling and simulations, RF and microwave component design and fabrication, system design and platform integration (including UAVs), multi-chip module miniaturization, RF front-end electronics, and polarimetric remote sensing.

## **Mentoring Experience**

*Graduate Mentor*, July 2016 – August 2018

The University of Oklahoma, Norman, OK

*Research Experience for Undergraduates (REU) Mentor*, May 2014 – August 2014

The University of Kansas, Lawrence, KS

*Graduate Mentor*, July 2013 – May 2015

The University of Kansas, Lawrence, KS

## **Professional Memberships**

(\* = current membership)

Institute of Electrical and Electronics Engineers\*

Member, 2018 – Present

Student Member, 2011 – 2015, 2016 – 2018

Member of IEEE Microwave Theory and Techniques Society\*

Member of IEEE Electronics Packaging Society\*

Member of IEEE Instrumentation and Measurement Society\*

Member of International Microelectronics and Packaging Society\*

Member of IEEE Aerospace and Electronic Systems Society\*

Member of IEEE Geoscience and Remote Sensing Society

Tau Beta Pi, engineering honor society\*

Eta Kappa Nu, electrical engineering honor society\*

## **Professional Service**

*Peer Reviewer:*

IEEE Transactions on Microwave Theory and Techniques (TMTT)

IEEE Transactions on Components, Packaging, and Manufacturing Technology (TCPMT)

IEEE Transactions on Aerospace and Electronic Systems (TAES)

IEEE Microwave and Wireless Component Letters (MWCL)

IEEE Radar Conference

IEEE Wireless and Microwave Technology Conference (WAMICON)

IET Electronic Letters

## **University Service**

*ECE Faculty Advisor*, University of Oklahoma's New Engineer's Welcome Event, August 2018

## **Additional Activities**

*IEEE Microwave Theory and Techniques Society*, The University of Oklahoma, Fall 2016 – Present

*Student Ambassador*, Advanced Radar Research Center, Fall 2016 – Fall 2018

*Student STEM Representative*, Higher Education Day at Oklahoma Capitol, Spring 2016

*Student Ambassador*, Center for Remote Sensing of Ice Sheets, Fall 2013 – Spring 2015

*HKN Beta Kappa Chapter Member*, Kansas State University, Fall 2011 – Spring 2013

*Tau Beta Pi Kansas Gamma Chapter Member*, Kansas State University, Fall 2011 – Spring 2013

*Engineering Ambassador Executive Member*, Kansas State University, Fall 2011 – Spring 2013

*Engineering Ambassadors Selections Chair*, Kansas State University, Fall 2011 – Spring 2012

## **Honors and Awards**

*Outstanding Graduate Student Award in Research*, The University of Oklahoma, May 2018

*International Microwave Symposium PhD Student Sponsorship Initiative*, IEEE, April 2018

*Provost's Graduate Teaching Assistant Award*, The University of Oklahoma, April 2018

*Provost's Certificate of Distinction in Teaching Award*, The University of Oklahoma, March 2018

*Advanced Radar Research Center Journal Paper Award*, The University of Oklahoma, February 2018

*Advanced Radar Research Center Travel Award*, The University of Oklahoma, February 2018

*Outstanding Paper Award*, Intern. Symp. in Earth-Science Challenges Conf., October 2017

*Intern. Symp. on Earth-Science Challenges Fellowship*, The University of Oklahoma, August 2017

*Dolese Teaching Fellowship*, The University of Oklahoma, August 2017

*Electrical and Computer Engineering Travel Grant*, The University of Oklahoma, March 2017

*Best Poster Presentation and 1st Place Prize*, The University of Oklahoma, February 2017

*Electrical and Computer Engineering Travel Award*, The University of Kansas, May 2015

*Prestigious Richard K. Moore Best Masters Thesis Award*, The University of Kansas, May 2015

*Highest Honors Graduation for Outstanding Masters Thesis*, The University of Kansas, May 2015

*NASA-Kansas Space Grant Consortium Fellowship*, The University of Kansas, May 2014

*Knights of St Patrick's Award*, Kansas State University, May 2013

*Engineer Ambassador Executive of the Year Award*, Kansas State University, May 2012

## **Certifications**

*ITAR Relative to Research Training*, The University of Oklahoma, Fall 2016

*Six Sigma Green Belt*, Kansas City National Security Campus, Spring 2016

*Solder Inspection*, Kansas City National Security Campus, Spring 2016

## **Grant Involvement**

### ***Pending***

- [1] Title: "Radar 2021 Consortium Grant Phase IV"  
Source: Kansas City National Security Campus  
Duration: 12 months  
Amount: \$180,500 requested  
Status: Submitted  
Role: Principal Investigator

### ***Current***

- [2] Title: "Radar 2021 Consortium Grant Phase III"  
Source: Kansas City National Security Campus  
Duration: 12 months  
Amount: \$165,000  
Status: Funded  
Role: Co-Principal Investigator

### ***Past***

- [3] Title: "Radar 2021 Consortium Grant Phase II"  
Source: Kansas City National Security Campus  
Duration: 12 months  
Amount: \$150,000  
Status: Completed  
Role: Co-Principal Investigator
- [4] Title: "Radar 2021 Consortium Grant Phase I"  
Source: Department of Energy  
Duration: 12 months  
Amount: \$1,200,000  
Status: Completed  
Role: Co-Principal Investigator
- [5] Title: "2-18 GHz FMCW Polarmetric Snow Radar Phase II"  
Source: Naval Research Laboratory  
Duration: 12 months  
Status: Completed  
Role: Graduate Student Lead

- [6] Title: “2-18 GHz FMCW Polarimetric Snow Radar Phase I”  
 Source: Naval Research Laboratory  
 Duration: 12 months  
 Status: Completed  
 Role: Graduate Student Lead

### Thesis

- [1] **J. W. McDaniel**, “Design, Integration, and Miniaturization of a Multichannel Ultra-Wideband Snow Radar Receiver and Passive Microwave Components,” *Masters Thesis*. Retrieved from <https://www.cresis.ku.edu/sites/default/files/biblio/TechRpt161.pdf>, 2015.

### Dissertation

- [1] **J. W. McDaniel**, “Self-Packaged and Low-loss Suspended Integrated Stripline Filters for Next Generation Systems,” *PhD Dissertation*, 2018.

### Publications and Presentations

#### *Journal Papers*

- F. R. Morales, C. Leuschen, **J. W. McDaniel**, C. Carabajal, J. Paden, A. Wolf, “High Altitude Measurements of Snow and Ice Using a 2-18 GHz Ultra-Wideband FMCW Radar,” *IEEE Geosci. Remote Sens. Lett.*, 2018. (in preparation).
- J. W. McDaniel**, S. Saeedi, M. B. Yearly, and H. H. Sigmarsson, “Frequency Scaling of Filters in Suspended Integrated Strip-line Technology up to Ka-Band,” *IEEE Microwave and Wireless Component Letters*, 2018. (in preparation).
- J. W. McDaniel**, S. Saeedi, M. B. Yearly, and H. H. Sigmarsson, “Design Equations for a Chebyshev Low Pass Filter Using Suspended Integrated Strip-line Technology,” *IEEE Trans. on Microw. Theory Techn.*, 2018. (in preparation).
- J. W. McDaniel**, J. B. Yan, and S. Gogineni, “A Precise Design Approach for Rapid Prototyping of Super Ultrawide-band Suspended Substrate Stripline Filters,” *Progress in Electromagnetics Research Journal*, 2017. (submitted).
- J. W. McDaniel**, S. Saeedi, M. B. Yearly, and H. H. Sigmarsson, “A Low Loss Fully-Board Integrated Low Pass Filter Using Suspended Integrated Strip-line Technology,” *IEEE Trans. on Compon. Packag. Manuf. Technol.*, 2018. (accepted).
- J. W. McDaniel**, M. B. Yearly, H. H. Sigmarsson, J. A. Wolf, S. Garrison, K. Byers, and M. Clewell, “Integration and Miniaturization of a Ka-Band Stepped Frequency Radar for UAV Applications,” *Advancing Microelectronics*, vol. 45, no. 2, pp. 6-10, Mar. 2018. (invited).
- J. B. Yan, **J. W. McDaniel**, D. Gomez, Y. Li, and S. Gogineni, “Ultra-Wideband FMCW Radar for Airborne Measurements of Snow Over Sea-ice and Land,” *IEEE Trans. Geosci. Remote Sens.*, vol. 55, no. 2, pp. 834-843, Feb. 2017.

**J. W. McDaniel**, J. B. Yan, and S. Gogineni, "Design, Integration, and Miniaturization of a Multi-channel Ultrawide-band (UWB) Snow Radar Receiver for Airborne Remote Sensing," *Microwave Journal*. vol. 59, no. 4, pp. 20-28, Apr. 2016.

### **Conference Papers**

**J. W. McDaniel**, S. Saeedi, M. B. Yearly, and H. H. Sigmarsson, "A Ka-band Suspended Integrated Strip-line Transition and Low Pass Filter Design," *Government Microcircuit Applications and Critical Technology Conference (GOMACTech18)*, Miami, FL, Mar. 2018.

**J. W. McDaniel**, H. H. Sigmarsson, M. B. Yearly, F. R. Morales, C. Leuschen, A. Feathers, "Ultrawideband Frequency Modulated Continuous Wave Radar and Ku-Band Synthetic Aperture Radar for Airborne Imaging and Snow Characterization," in *Proceedings of 2017 International Symposium on Earth-Science Challenges (ISEC)*, Uji, Kyoto, Japan, Oct. 2017.

F. R. Morales, C. Leuschen, A. Feathers, **J. W. McDaniel**, J. A. Wolf, and S. Garrison, "Packaging and Miniaturization of a 2-18 GHz UWB Radar for Measurements of Snow and Ice: Initial Results," in *Proceedings of 2017 International Microelectronics Assembly and Packaging Conference (IMAPS)*, Raleigh, NC, Oct. 2017.

**J. W. McDaniel**, M. B. Yearly, H. H. Sigmarsson, J. A. Wolf, S. Garrison, K. Byers, and M. Clewell, "Integration and Miniaturization of a Ka-Band Stepped Frequency Radar for UAV Applications," in *Proceedings of 2017 International Microelectronics Assembly and Packaging Conference (IMAPS)*, Raleigh, NC, Oct. 2017.

**J. W. McDaniel**, S. Saeedi, M. B. Yearly, and H. H. Sigmarsson, "Suspended Integrated Strip-line Transition Design for Highly Integrated Radar Systems," in *Proceedings of 2017 Government Microcircuit Applications and Critical Technology Conference (GOMACTech17)*, Reno, NV, Mar. 2017.

J. B. Yan, **J. W. McDaniel**, D. Gomez, Y. Li, and S. Gogineni, "Multi-channel Ultra-Wideband Airborne Radar for Snow Back-scattering Measurements," in *Proceedings of 2016 IEEE International Symposium on Phased Array Systems and Technology (PAST)*, Waltham, MA, Oct. 2016.

J. B. Yan, **J. W. McDaniel**, D. Gomez, Y. Li, C. Leuschen, S. Gogineni, and J. Brozena, "Ultra-wideband 2-18 GHz FMCW Radar with 1.4-cm Range Resolution for Airborne Measurement of Snow," *Snow Thickness on Sea Ice Working Group (STOSIWIG)*, Irvine, CA, 2015. (invited).

### **Presentations**

**J. W. McDaniel**, "Design and Development of a Ku-band Synthetic Aperture Radar and Novel Microwave Components," *Invited, Advanced Radar Research Center's Industry and Government Days*, University of Oklahoma, November 2017.

**J. W. McDaniel**, "Design and Development of a Ku-band Synthetic Aperture Radar and Novel Microwave Components," *Invited, Bi-Annual Advisory Board Meeting*, University of Oklahoma, November 2017.

- J. W. McDaniel**, “Frequency Scaling of Suspended Integrated Strip-line Filter Technology for Highly Integrated Microwave Transceivers up to Ka-band,” *Kansas City National Security Campus Update*, KCNSC, Summer 2017.
- J. W. McDaniel**, “Design of a Novel Suspended Integrated Strip-line Filter Technology for Highly Integrated Microwave Transceivers,” *Kansas City National Security Campus Update*, KCNSC, Spring 2017.
- J. W. McDaniel**, “Design and Development of a Ku-band Synthetic Aperture Radar and Microwave Components for UAV Imaging,” *Oklahoma Research Day*, University of Oklahoma, Spring 2017.
- J. W. McDaniel**, “Suspended Integrated Strip-line Transition for Highly Integrated Radars Systems,” *GOMACTech 2017*, Reno, NV, March, 2017.
- J. W. McDaniel**, “Design and Integration of a Ku-band SAR Imaging Radar,” *Kansas City National Security Campus Update*, KCNSC, Summer 2016.
- J. W. McDaniel**, “Design and Integration of a 2-18 GHz FMCW Snow Radar and Passive Microwave Components,” *National Science Foundation*, Arlington, VA, Spring 2015.
- J. W. McDaniel**, “Design and Integration of a 2-18 GHz FMCW Snow Radar,” *Naval Research Laboratory Research Update*, University of Kansas, Spring 2015.
- J. W. McDaniel**, “Importance of Higher Education and Innovative Research,” *Invited Talk, Self Fellow Summer Program*, University of Kansas, June 2014.
- J. W. McDaniel**, “Design and Integration of a 2-18 GHz FMCW Snow Radar,” *Naval Research Laboratory Research Update*, University of Kansas, Spring 2014.
- J. W. McDaniel**, “The Decision Making Process for Graduate School vs. Industry,” *Invited Talk, IEEE HKN Lecture Series*, Kansas State University, March 2014.

### Courses Taught

*ECE 4703/5703: Electromagnetic Fields and Wave Propagation II*

The University of Oklahoma, School of Electrical & Computer Engineering, Norman, OK

Senior and graduate level electromagnetics and microwave engineering technical elective.