Buford Randall Jean

23 Timber Ridge Trail
Lorena, Texas 76655
254.751.0331

EDUCATION

Texas A&M University, College Station, TX ▪ 1978
Ph.D. in Electrical Engineering
Dissertation: “Multiple Antenna Beam Formation Techniques for Synthetic Aperture Radar”

Texas A&M University, College Station, TX ▪ 1971
M.S. in Electrical Engineering
Thesis: “Selected Applications of Microwave Radiometry”

Texas A&M University, College Station, TX ▪ 1970
B.S. in Electrical Engineering
With High Honors

AWARDS

- Texas A&M University Faculty Achievement Award, 1970
- Teacher of the Year Award, Department of Electrical Engineering, TAMU, 1986.
- R&D 100 Award for Guided Microwave Spectrometer, 1994

ACADEMIC EXPERIENCE

At Baylor University, Waco, TX

Associate Professor – Electrical and Computer Engineering, ▪ 2003- Present
Research interests include RF and microwave sensors and measurements for industrial and biomedical applications. Tenure: August 1, 2008.

At Texas A&M University, College Station, TX

Assistant Professor – Electrical Engineering ▪ 1978-1986
Member of the Graduate Faculty, Tenured 1984. Taught undergraduate courses in circuit theory, electronics and electromagnetics. Taught graduate course in radar system theory.

Research Associate – Remote Sensing Center ▪ 1974-1978
Developed microwave sensors and signal processors for the NASA Earth Resources Program at the Johnson Space Center, Houston, TX. Principal Investigator on various NASA funded research projects.

At Lawrence Institute of Technology, Southfield, MI

Lecturer – Department of Electrical Engineering, Evening School ▪ 1973-1974
Taught undergraduate courses in circuit theory and electronics.

INDUSTRIAL EXPERIENCE

Principal, Rhino Analytics, LLC, Austin, TX, 1999 – 2003
Inventor and developer of microwave-based technologies for industrial composition measurement applications. Patented microwave interferometer sensor for steam quality measurements. Patented ultra wideband pulse dispersion spectrometer for industrial and biomedical sensing applications.

Senior Research Scientist, Epsilon Industrial, Inc., Austin, TX, 1993 – 1998
Inventor and developer of patented microwave-based measurement technology presently being marketed as Guided Microwave Spectrometry (GMS).

Principal Engineer, TN Technologies, Inc., Round Rock, TX 1989-1993
Technology transfer employment contract following sale of CannonBear, Inc. Continued to develop novel industrial microwave measurement technologies. Obtained patents for spectral averaging technique for agitated surfaces and microwave process seal design.

Principal and Vice-President, CannonBear Inc., College Station, TX, 1986-1989
One of 5 founders of the company. Developed and patented microwave point level sensor, solids flow detector, radar level gauge technology.

Senior Engineer, Bendix Research Labs, Southfield, MI, 1971-1974
Developed high-power solid-state pulsed microwave oscillator for aircraft transponders. Designed various circuits for automotive radar, wideband communications and related applications.

Engineering Consultant to:
Frito-Lay Research and Development, Plano, TX
PECO Manufacturing Company, Inc., Portland, OR
Fisher Controls, Marshalltown, IA
Rosemount Analytical, Minneapolis, MN
OI Analytical, College Station, TX

Expert Witness for the following firms:
Fish and Neave, New York, NY
Wiggin and Dana, Hartford, CT
Shrouf, Zamecki, Payne and Lundeen, Houston, TX

PATENTS

(US PATENTS ONLY—MOST HAVE FOREIGN EQUIVALENTS)

- Jean, Buford R., “Ultra-Wide Band Non-Invasive Biological Sensor and Method,” preliminary U. S. Patent application, submitted February, 2010.
- Jean, Buford R., F. L. Whitehead and J. L. Daniewicz, “Ultra Wideband Pulse Dispersion Spectrometry Method and Apparatus Providing Multi-Component Composition Analysis”, U. S. Patent 6,987,393, January 17, 2006.
- Jean, Buford R., F. L. Whitehead and J. L. Daniewicz, “A Microwave Sensor Having Improved Sensitivity”, U. S. Patent 6,614,238 B1, September 2, 2003
- Jean, Buford R., G.L. Warren, and F. L. Whitehead, “Meter and Method for the In Situ Measurement of the Electromagnetic Properties of Various Process Materials Using Cutoff Frequency Characterization and Analysis”, U. S. Patent 5,311,284, July 19, 1994, and 5,455,516 (CIP), October 3, 1995
- Jean, Buford R., G. L. Warren, “Microwave Apparatus and Method for Ullage Measurement of Agitated Fluids by Spectral Averaging”, U. S. Patent 5,321,408, June 14, 1994.
- Dalrymple, Thomas H., B. R. Jean, T. L. Erb, F. L. Whitehead, “Method and Apparatus for Monitoring a Flowable Material in a Transportable Vessel”, U. S. Patent 5,305,237, April 19, 1994
- Jean, Buford R., “Microwave Process Seal”, U. S. Patent 5,262,743, November 16, 1993.
- Jean, Buford R., “Microwave Process Seal and Method”, U. S. Patent 5,115,218, May 19, 1992.
- Jean, Buford R., R. W. Newton, A. J. Blanchard, B. V. Clark, G. L. Warren, “Radar Tank Gauge”, U. S. Patent 4,737,791, April, 12, 1988 and 4,847,623 (CIP), July 11, 1989.
- Jean, Buford R., R. W. Newton, G. L. Warren, B. V. Clark, “Sensor and Method for Ullage Level and Flow Detection”, U. S. Patent 4,833,918, May 30, 1989, Reissue RE34501, January 11, 1994.

REFEREED JOURNAL ARTICLES

- B. R. Jean, M. L. Trumbo, and R. J. Marks, "A New Modality for Microwave Tomographic Imaging: Transit Time Tomography," *International Journal of Tomography & Statistics,* Vol. 11, No. W09, pp. 4-12. Winter 2009.
- B. R. Jean, "A Microwave Sensor for Steam Quality," *IEEE Transactions on Instrumentation and Measurement,* Vol. 57, Issue 4, April 2008, pp. 751—754.
- E. C. Green, B. R. Jean, and R. J. Marks, "Artificial Neural Network Analysis of Microwave Spectrometry on Pulp Stock: Determination of Consistency and Conductivity" *IEEE Transactions on Instrumentation and Measurement*, Vol. 55, Issue 6, December 2006, pp. 2132—2135.
- B. R. Jean, "Process Composition Monitoring at Microwave Frequencies: A Waveguide Cutoff Method and Calibration Procedure," *IEEE Transactions on Instrumentation and Measurement*, Vol. 55, Issue 1, February 2006, pp 180—186.
- A. J. Blanchard, R. W. Newton, and B. R. Jean, "Amplitude and Phase Errors Involved in Retrieving Depolarized Radar Cross Section Measurements," *IEEE Transactions on Geoscience and Remote Sensing,* Vol. GE-21, No. 3, June 1983.
- B. R. Jean and J. W. Rouse, "A Multiple Beam Synthetic Aperture Radar Design Concept for Geoscience Applications," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. GE-21, No. 2, April 1983.
- A. J. Blanchard and B. R. Jean, "Antenna Effects in Depolarization Measurements," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. GE-21, No. 1, January 1983.
- A. J. Blanchard, R. W. Newton, L. Tsang, and B. R. Jean, "Volumetric Effects in Cross-Polarized Airborne Radar Data*," IEEE Transactions on Geoscience and Remote Sensing*, Vol. GE-20, No. 1, January 1982.
- R. W. Newton, A. J. Blanchard, B. R. Jean, Q. R. Black, and S Makanvand, "Soil Moisture Information and Thermal Microwave Emission", *IEEE Transactions on Geoscience and Remote Sensing*. Vol. GE-20, July 1982, pp. 275-281.

BOOK CHAPTER

- B. R. Jean, "Guided Microwave Spectrometry for In-line Analysis of Flowable Materials" Chapter 6, *Sensor Update Vol. 7,* RF & Microwave Sensing of Moist Materials, Food, and other Dielectrics, Editors: Klaus Kupfer, Andrzej Kraszewski, and Reinhard Knöchel, ISBN 3-527-29821-5, Wiley-VCH GmbH D-69469 Weinheim, 2001.

CONFERENCE AND OTHER PUBLICATIONS

- B. J. Herrera and B. R. Jean, "A Low Cost Ultra-Wideband Pulse Transceiver," IEEE 42nd South Eastern Symposium on System Theory, Tyler, Texas March 2010, pp. 72-74.
- B. R. Jean, E. C. Green, and M. J. McClung, "A Microwave Frequency Sensor for Non-Invasive Blood-Glucose Measurement," IEEE Sensors Applications Symposium (SAS), Atlanta, Georgia, February, 2008.
- B. R. Jean, "Guided Microwave Spectrometry for On-line Moisture Measurement of Flowable Materials," IEEE Microwave Theory and Techniques International Microwave Symposium, Session WMFB, July 1996.
- Walt Boyes and Randall Jean, "Look At Your Process Non-Invasively-Microwave radar is the rising star among non-invasive sensing techniques for flow, level, or composition," *Chemical Engineering,* June 1994.
- G. L. Warren, B. R. Jean, A. J. Blanchard, and C. L. Walthall, "A high resolution, field portable spectrometer," 15th International Symposium on Remote Sensing of Environment, University of Michigan, Ann Arbor, Michigan, 11-15 May 1981. pp. 691-700.
- B. R. Jean, J. A. Richerson, and J. W. Rouse, Jr., "Experimental microwave measurements of controlled surfaces (Surface temperature measurement by microwave radiometry, noting sensitivity reduction due to moisture effects for resolution cell size targets)," 7th International Symposium on Remote Sensing of Environment, University of Michigan, Ann Arbor, Michigan, 17-21 May 1971. pp. 1847-1859.

SPONSORED RESEARCH TECHNICAL REPORTS

- B. R. Jean, G. J. Reisor, M. T. Shay, and J. A. Permenter, "Radar Studies of Arctic Ice and Development of a Real-Time Arctic Ice Type Identification System," Progress Report Texas A&M University Remote Sensing Center prepared for the Naval Surface Weapons Center, Accession Number: ADA025862, January, 1975, 106 pages.

- J.A. Schell, B. R. Jean, and W. C. Hulse, "Radar Studies of Arctic Ice and Development of a Real-Time Arctic Ice Type Identification System," Final Report Texas A&M University Remote Sensing Center prepared for the Naval Surface Weapons Center, Accession Number: ADA040275, January, 1976, 69 pages.

- B. R. Jean, R. W. Newton, G. L. Warren, B, V. Clark, and J. L. Zajicek, “Improvements and Modifications to the NASA Microwave Signature Acquisition System,” Final Report, RSC-3308-5, Texas A&M University Remote Sensing Center for NASA Johnson Space Center, Earth Resources Division, NASA-CR-151851, 1978.

- J. P. Claassen, R. O. Stroud, B. V. Clark, and B. R. Jean, “The System and Hardware Design of Real-Time Fan Beam Scatterometer Data Processors,” Technical Report RSC-3556, Texas A&M University Remote Sensing Center for NASA Johnson Space Center, Earth Resources Division, NASA-CR-160350, 1979.

- B. V. Clark and B. R. Jean, “The Software System Development for the TAMU Real-Time Fan Beam Scatterometer Data Processors,” Technical Report RSC-3556-2, Texas A&M University Remote Sensing Center for NASA Johnson Space Center, Earth Resources Division, NASA-CR-160880, 1980.

- B. R. Jean, “Development of a Synthetic Aperture Radar Design Approach for Wide-Swath Implementation,” Technical Report RSC-4272, Texas A&M University Remote Sensing Center prepared for NASA Johnson Space Center, Earth Resources Division, NASA-CR-167536,September, 1981.

- G. L. Warren, B. R. Jean, A. J. Blanchard and C. L. Walthall, “A High Resolution, Field Portable Spectrometer,” Texas A&M University Remote Sensing Center for NASA Johnson Space Center, Earth Resources Division, Contract Number NGL-44-001-001, January, 1981.

MEMBERSHIPS AND LICENSES

National Honor Societies:

Phi Eta Sigma
Phi Kappa Phi
Eta Kappa Nu
Tau Beta Pi

Senior Member, Institute of Electrical and Electronics Engineers

American Society for Engineering Education

Registered Professional Engineer, Texas, PE# 37907

Private Pilot, Single Engine Land, Instrument Airplane, Certificate Number 3243781