

**DOUGLAS B. WILLIAMS**  
**Professor & Associate Chair for Undergraduate Affairs**  
**School of Electrical & Computer Engineering**  
**Georgia Institute of Technology**  
**January 2009**

**I. EARNED DEGREES**

<b>Degree</b>	<b>Year</b>	<b>University</b>	<b>Field</b>
BSEE ( <i>summa cum laude</i> )	1984	Rice University	Electrical Engineering
MS	1987	Rice University	Electrical and Computer Engineering
PhD	1989	Rice University	Electrical and Computer Engineering

**II. EMPLOYMENT**

<b>Title</b>	<b>Organization</b>	<b>Years</b>
Research Assistant	Rice University	1984-1989
Research Associate	Rice University	1989
Assistant Professor	Georgia Institute of Technology	1989-1995
Associate Professor	Georgia Institute of Technology	1995-2006
Associate Chair for Undergraduate Affairs	Georgia Institute of Technology	2003-present
Professor	Georgia Institute of Technology	2006-present

**III. TEACHING**

**A. Individual Student Guidance**

**Ph.D. Students Graduated:**

- Wayne T. Padgett, “*Detection of Low Order Nonstationary Gaussian Random Processes*,” Ph.D., Spring 1994.  
 Current Position: Associate Professor, Rose-Hulman Institute of Technology, Terre Haute, IN
- Chungyong Lee, “*Noise Reduction Methods for Chaotic Signals with Application to Secure Communications*,” Ph.D., Fall 1995.  
 Current Position: Professor, Yonsei University, Seoul, Korea
- Jeffrey B. Schodorf, “*Adaptive Array Processing Techniques for Interference Suppression in Mobile Communication Systems*,” Ph.D., Spring 1996.  
 Current Position: Technical Staff, MIT Lincoln Laboratory, Lexington, MA
- Stephen M. Kogon, “*Adaptive Array Processing Techniques for Terrain Scattered Interference Mitigation*,” Ph.D., Winter 1997.  
 Current Position: Assistant Group Leader, MIT Lincoln Laboratory, Lexington, MA
- Arthur Fleming-Dahl, “*A Chaotic Communication System with a Receiver Estimation Engine*,” Ph.D., Summer 1998.

Current Position: Aerospace Corporation, Chantilly, VA

6. Daniel F. Drake, "*Information's Role in the Estimation of Chaotic Signals*," Ph.D., Fall 1998.  
Current Position: Research Technical Specialist, School of Medicine, Emory University, Atlanta, GA
7. Yaron Seliktar, "*Space-Time Adaptive Monopulse Processing*," Ph.D., Winter 1999.  
Current Position: Instructor, Jerusalem College of Engineering, Jerusalem, Israel
8. John D. Terry, "*Blind Adaptive Array Techniques for Mobile Satellite Communications*," Ph.D., Spring 1999.  
Current Position: CTO and Co-founder, Witivity, Plano, TX
9. King F. Lee, "*Space-Time and Space-Frequency Coded Orthogonal Frequency Division Multiplexing Transmitter Diversity Techniques*," Ph.D., Spring 2001.  
Current Position: Distinguished Member of the Technical Staff, Multimedia Architecture Lab, Motorola Labs, Schaumburg, IL
10. Mahmut Ciftci, "*Channel Equalization for Chaotic Communications Systems*," Ph.D., Summer 2002.  
Current Position: Texas Instruments DSP Semiconductor Division, Stafford (Houston), TX
11. Nancy B. List, "*Low-Complexity Interleaver Design for Turbo Codes*," Ph.D., Summer 2004.  
Current Position: Technical Staff, MIT Lincoln Laboratory, Lexington, MA
12. Soner Ozgur, "*Reduced Complexity Sequential Monte Carlo Algorithms for Blind Receivers*," Ph.D., Spring 2006.  
Current Position: Signal Processing Engineering, Atheros Communications, Santa Clara, CA
13. Jingnong Yang, "*Channel State Information in Multiple Antenna Systems*," Ph.D., Fall 2006.  
Current Position: DSP Communication System Engineering, Amicus Wireless Technology, Sunnyvale, CA
14. Matthew D. Clark, "*Electronic Dispersion Compensation for Interleaved A/D Converters in a Standard Cell ASIC Process*," Ph.D., Summer 2007.  
Current Position: Communication System Engineer, Northrop Grumman IT-TASC, Chantilly, VA
15. Nicolas Hugh René Gastaud Gallagher, "*Multi-Gigahertz Encrypted Communication Using Electro-Optical Chaos Cryptography*," Ph.D., Fall 2007.  
Current Position: Field Engineer, Schlumberger, Houston, TX

**M.S. Students Graduated:**

1. Douglas Fletcher, "*Adaptive Filtering for Extracting Asymmetric Rotating Body Information from Measurement Sensors*," M.S., Spring 1994.  
Current Position: Advanced Design Engineer, 3M Engineering Systems and Technology, St. Paul, MN

### **Current Ph.D. Student Guidance:**

1. Sevgi Ertan  
Started Advising: Fall 2003  
Examination Dates: Ph.D. Preliminary Exam, Fall 2002  
Ph.D. Proposal Exam, Spring 2007  
Anticipated Ph.D. Graduation Date: Summer 2009  
Topic: Radar Detection and Identification of Human Signatures Using Moving Platforms

### **B. Other Teaching Activities**

#### **Curriculum Development:**

Spatial Array Processing: First offered as a special topics course in the Spring of 1989. Was permanently listed as EE6419 under the quarter system and is now listed as ECE6279 as a semester course. This course offers an introduction to application areas where signals are sampled over space as well as time. The goal is to develop algorithms unique to spatial processing and transfer knowledge of time-based techniques to spatial processing. More than 300 students have taken this course.

Nonlinear Models for Signal Processing: Offered as a special topics course in the Winter of 1994. This course provided an introduction to nonlinear methods for signal processing focussing on those techniques related to dynamical systems and fractals. Course enrollment was 11 students.

ECE 6250 (Advanced Digital Signal Processing): Developed a new entry-level graduate course in signal processing as part of the conversion to the semester system. Only about 30% of this course had been taught previously; the remainder was new to our curriculum. The course goal is to provide a variety of signal processing tools and techniques that are used in a wide range of application areas. Offered each Fall since 1999, approximately 250 students (on-campus, video, and online) have been taught this course by D.B. Williams. In the Fall of 2000, it became one of the first three ECE courses offered online to off-campus students. D.B. Williams spent a large portion of 2000 (at least half-time from January to November) developing the online lectures and associated materials for this course.

Introduction to ECE Design: An introduction to basic concepts and activities useful for all areas of Electrical and Computer Engineering. Focus on hands-on, team-based activities designing and building simple robots. Prior to this course, freshmen often chose whether or not to select a major in ECE before they had ever taken an ECE class. Our goal was to offer a course with no prerequisites that would nonetheless give a 'big picture' view of ECE. The course meets twice a week in a 1.5 hour slot with one class being a lecture and the other a lab. The semester finishes with a competition to determine which team's robot best meets the design challenge. We are using the new LEGO Mindstorms NXT kit, which is a significant improvement over the previous Mindstorms RCX kit. The newer kit has an improved software environment, a 32-bit processor, and better motors and sensors. Because we were the first university program in the country to use this kit, we have received significant support from LEGO Education and National Instruments, who developed the programming environment. Two sections of this course with 19 to 24 students per section have been taught in the following semesters: Fall 2006, Spring 2007, Fall 2007, and Spring 2008.

#### **Continuing Education:**

DSP for Practicing Engineers: Joined five other faculty in developing an online, asynchronous course to train practicing engineers in DSP theory and real-time signal processing. Students are able to watch lectures and perform laboratory exercises at home, over the course of 12 weeks, without taking time off from work or needing to travel to attend the course. Sessions of this course were offered in February, July, and October 2000, to a total of over 150 students. Beginning in Spring 2001, D.B. Williams became the sole faculty member responsible for organizing this online short course. He has also worked to extend the course to other DSP microprocessors. This course supports 2 to 4 graduate students who assist with course management and development.

#### **Outreach:**

Camp-ICE: With the School of ECE's Prof. G. Riley and the College of Computing's M. Biggers and K. Nagel, developed and taught one-week summer camps designed to introduce high school students to computing and computer engineering. In 2004 and 2005, two camps were offered each year with an average of 35 students per camp.

HOT (Hands-on Tech) Days: With the School of ECE's Prof. G. Riley and Dr. Leyla Conrad, developed and taught a one-week summer camps designed to introduce high school students to electrical and computer engineering. In both 2006 and 2007, two camps were offered with an average of 20 students per camp.

#### **IV. Publications**

1. D.B. Williams and D.H. Johnson, "Modifying the sphericity test for improved source detection with narrowband passive arrays," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 4, pp. 2272-2275, Dallas, TX, April 1987.
2. D.B. Williams and D.H. Johnson, "Robust maximum-likelihood estimation of structured covariance matrices," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 5, pp. 2845-2848, New York, NY, April 1988.
3. D.B. Williams and D.H. Johnson, "Using real spatial correlation matrices for improved array processing," *Proc. IEEE ASSP Workshop on Spectral Estimation and Modeling*, pp. 323-326, Minneapolis, MN, August 1988.
4. D.B. Williams and D.H. Johnson, "Narrowband array processing algorithms for arbitrary noise distributions," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 4, pp. 2830-2833, Glasgow, Scotland, May 1989.
5. D.B. Williams and D.H. Johnson, "On the number of narrowband signals which can be resolved with a uniform linear array," *Proc. Asilomar Conf. on Signals, Systems, and Computers*, vol. 1, pp. 48-52, Pacific Grove, CA, October 1989. (**invited paper**)
6. D.B. Williams and D.H. Johnson, "Using the sphericity test for source detection with narrowband passive arrays," *IEEE Trans. on Acoustics, Speech, and Signal Processing*, vol. 38, no. 11, pp. 2008-2014, November 1990.
7. B. Jost and D.B. Williams, "A beamformer based upon the random coefficient model," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. V, pp. 261-264, San Francisco, CA, March 1992.

8. D.B. Williams and D.H. Johnson, "On resolving  $2M-1$  narrowband signals with an  $M$  sensor uniform linear array," *IEEE Trans. on Signal Processing*, vol. 40, no. 3, pp. 707-711, March 1992.
9. D.F. Drake and D.B. Williams, "On error function selection for the analysis of nonlinear time series," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. V, pp. 329-332, San Francisco, CA, March 1992.
10. D.B. Williams, "A minimum probability of error approach to designing information theoretic criteria," *Proc. IEEE DSP Workshop*, pp. 7.6.1-7.6.2, Starved Rock State Park, IL, September 1992.
11. D.B. Williams, "Comparison of AIC and MDL to the minimum probability of error criterion," *Proc. IEEE Signal Processing Workshop on Statistical Signal and Array Processing*, pp. 114-117, Victoria, BC, Canada, October 1992.
12. D.F. Drake and D.B. Williams, "Recovering dynamically independent coordinates for time-delay-embedded product systems," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. III, pp. 125-128, Minneapolis, MN, April 1993.
13. D.B. Williams and D.H. Johnson, "Robust estimation of structured covariance matrices," *IEEE Trans. on Signal Processing*, vol. 41, no. 9, pp. 2891-2906, September 1993.
14. S. Hwang and D.B. Williams, "A constrained total least squares approach for sensor position calibration and direction finding," *Proc. IEEE National Radar Conference*, pp. 155-159, Atlanta, GA, March 1994.
15. J.B. Schodorf and D.B. Williams, "Sensor-efficient angle of arrival estimation for constrained signals," *Proc. IEEE National Radar Conference*, pp. 189-193, Atlanta, GA, March 1994.
16. W.T. Padgett and D.B. Williams, "Detection of nonstationary random signals in colored noise," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. IV, pp. 353-356, Adelaide, Australia, April 1994.
17. D.F. Drake and D.B. Williams, "Spread spectrum communication using chaotic systems," *Proc. IEEE Dual-Use Technologies and Applications Conf.*, vol. II, pp. 385-391, Rome, NY, May 1994. **(invited paper)**
18. W.T. Padgett and D.B. Williams, "Efficient simulation of random signal detectors," *Proc. IEEE Signal Processing Workshop on Statistical Signal and Array Processing*, pp. 71-74, Quebec City, Quebec, Canada, June 1994.
19. D.F. Drake and D.B. Williams, "Tracking multiple chaotic systems from a single observed sequence," *Proc. IEEE DSP Workshop*, pp. 75-78, Yosemite National Park, CA, October 1994.
20. C. Lee and D.B. Williams, "Preprocessing for noise reduction of chaotic signals," *Proc. IEEE DSP Workshop*, pp. 79-82, Yosemite National Park, CA, October 1994.

21. D.B. Williams, "Counting the degrees of freedom when using AIC and MDL to detect signals," *IEEE Trans. on Signal Processing*, vol. 42, no. 11, pp. 3282-3284, November 1994.
22. J.S. Goldstein, D.B. Williams, R.M. Mersereau, and E.J. Holder, "Inter-space and intra-space transformations for sensor array processing," *Proc. Asilomar Conf. on Signals, Systems, and Computers*, vol. 1, pp. 638-642, Pacific Grove, CA, November 1994.
23. J.S. Goldstein and D.B. Williams, "Rank reduction for minimum mean-square error signal processing," *Proc. Adaptive Sensor Array Processing Workshop*, vol. 2, pp. 373-393, Lexington, MA, March 1995.
24. C. Lee and D.B. Williams, "A preprocessing approach to improve noise reduction for chaotic signals," *Physics Letters A*, vol. 200, pp. 289-294, April 1995.
25. C. Lee and D.B. Williams, "A noise reduction method for chaotic signals," *Proc. IEEE Int. Conf. on Acoust., Speech, and Signal Proc.*, vol. 2, pp. 1348-1351, Detroit, MI, May 1995.
26. J.B. Schodorf, D.B. Williams, and J.R. Barry, "Sensor-efficient spatial processing of multiple co-channel digital signals," *Proc. IEEE Int. Conf. on Acoust., Speech, and Signal Proc.*, vol. 3, pp. 1749-1752, Detroit, MI, May 1995.
27. J.S. Goldstein and D.B. Williams, "Optimal partially adaptive sensor array processing," *Proc. IEEE Antennas and Propagation Society Int. Symp.*, vol. 3, pp. 1380-1383, Newport Beach, CA, June 1995.
28. C. Lee, J. Lee, and D.B. Williams, "A secure communication scheme using chaotic signals," *Proc. 12th Int. Conf. on Computer Communication*, pp. 421-425, Seoul, Korea, August 1995.
29. D.F. Drake and D.B. Williams, "Pseudo-chaos for direct-sequence spread-spectrum communication," *Proc. SPIE, Photonics East*, vol. 2612, pp. 104-114, Philadelphia, PA, October 1995.
30. D.F. Drake and D.B. Williams, "The consequences of chaos as noise," *Proc. Asilomar Conf. on Signals, Systems, and Computers*, vol. 2, pp. 1116-1120, Pacific Grove, CA, November 1995.
31. S.M. Kogon and D.B. Williams, "On the characterization of impulsive noise with  $\alpha$ -stable distributions using Fourier techniques," *Proc. Asilomar Conf. on Signals, Systems, and Computers*, vol. 2, pp. 787-791, Pacific Grove, CA, November 1995.
32. J.B. Schodorf and D.B. Williams, "A blind adaptive interference cancellation scheme for CDMA systems," *Proc. Asilomar Conf. on Signals, Systems, and Computers*, vol. 1, pp. 270-274, Pacific Grove, CA, November 1995.
33. J.S. Goldstein, S.M. Kogon, D.B. Williams, and E.J. Holder, "Partially adaptive radar signal processing: the cross spectral approach," *Proc. Asilomar Conf. on Signals, Systems, and Computers*, vol. 2, pp. 1383-1387, Pacific Grove, CA, October 1995.
34. J.S. Goldstein, D.B. Williams, and E.J. Holder, "A frequency domain realization of an optimal partially adaptive sensor array," *Proc. IEEE Military Communications Conf.*, vol. 2, pp. 607-611, San Diego, CA, November 1995.

35. J. Lee, C. Lee, and D.B. Williams, "Secure communication using chaos," *Proc. IEEE Global Communications Conf.*, vol. 2, pp. 1183-1187, Singapore, November 1995.
36. S.M. Kogon, D.B. Williams, and E.J. Holder, "Hot clutter cancellation with orthogonal beamspace transforms," *Proc. Adaptive Sensor Array Processing Workshop*, pp. 315-341, Lexington, MA, March 1996.
37. Y. Seliktar, D.B. Williams, and J.H. McClellan, " $(MT)^2$ : MountainTop MATLAB Toolbox," *Proc. Adaptive Sensor Array Processing Workshop*, pp. 65-70, Lexington, MA, March 1996.
38. J.B. Schodorf and D.B. Williams, "Partially adaptive multiuser detection," *Proc. IEEE Vehicular Technology Conference*, vol. 1, pp. 367-371, Atlanta, GA, April 1996.
39. Y. Seliktar, D.B. Williams, and J.H. McClellan, "Evaluation of partially adaptive STAP algorithms on the Mountain Top data set," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 2, pp. 1169-1172, Atlanta, GA, May 1996.
40. S.M. Kogon, D.B. Williams, and E.J. Holder, "Beamspace techniques for hot clutter cancellation," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 2, pp. 1177-1180, Atlanta, GA, May 1996.
41. J.B. Schodorf and D.B. Williams, "A constrained adaptive diversity combiner for interference suppression in CDMA systems," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 5, pp. 2666-2669, Atlanta, GA, May 1996.
42. D.F. Drake and D.B. Williams, "Minimum mean square error estimation for a class of chaotic systems," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 5, pp. 2960-2963, Atlanta, GA, May 1996.
43. C. Lee and D.B. Williams, "Filtering techniques for chaotic signals," *Journal of the Acoustical Society of Korea*, vol. 15, no. 3E, pp. 45-59, September 1996.
44. S.M. Kogon, D.B. Williams, and E.J. Holder, "Reduced rank terrain scattered interference mitigation," *Proc. IEEE Int. Symp. on Phased Array Systems and Technology*, pp. 400-405, Boston, MA, October 1996.
45. S.M. Kogon, D.B. Williams, and J.H. McClellan, "Factored mitigation of terrain scattered interference and monostatic clutter," *Proc. Asilomar Conf. on Signals, Systems, and Computers*, vol. 1, pp. 526-530, Pacific Grove, CA, November 1996. **(invited paper)**
46. J.D. Terry and D.B. Williams, "Exploiting linear block codes for blind co-channel interference reduction in TDMA based wireless communication systems," *Proc. Asilomar Conf. on Signals, Systems, and Computers*, vol. 1, pp. 70-74, Pacific Grove, CA, November 1996.
47. J.B. Schodorf and D.B. Williams, "A constrained optimization approach to multiuser detection," *IEEE Trans. on Signal Processing, Special Issue on Signal Processing for Advanced Communications*, vol. 45, no. 1, pp. 258-262, January 1997.

48. S.M. Kogon, E.J. Holder, and D.B. Williams, "On the use of terrain scattered interference for mainbeam jammer suppression," *Proc. of the Adaptive Sensor Array Processing Workshop*, Lexington, MA, March 1997.
49. C. Lee and D.B. Williams, "Generalized iterative methods for enhancing contaminated chaotic signals," *IEEE Trans. on Circuits and Systems – 1: Fundamental Theory and Applications*, vol. 44, no. 6, pp. 501-512, June 1997.
50. C. Lee, D.B. Williams, and J. Lee, "A secure communications system using chaotic switching," *Int. J. of Bifurcation and Chaos in Applied Sciences and Engineering*, vol. 7, no. 6, pp. 1383-1394, June 1997.
51. S.M. Kogon, E.J. Holder, and D.B. Williams, "Mainbeam jammer suppression using jammer multipath returns," *Proc. Asilomar Conf. On Signals, Systems, and Computers*, vol. 1, pp. 279-283, Pacific Grove, CA, October 1997. **(invited paper)**
52. J.B. Schodorf and D.B. Williams, "Array processing techniques for multiuser detection," *IEEE Trans. on Communications*, vol. 45, no. 11, pp. 1375-1378, November 1997.
53. S.M. Kogon and D.B. Williams, "On Characteristic Function Based Stable Distribution Parameter Estimation Techniques," in *A Practical Guide to Heavy Tails: Statistical Techniques and Applications*, (R.J. Adler, R.E. Feldman, and M.S. Taqqu, Eds.), pp. 311-335, Boston, MA: Birkhauser, 1998.
54. D.B. Williams, "Detection: Determining the Number of Sources," in *The Handbook of Digital Signal Processing*, (V.K. Madisetti and D.B. Williams, Eds.), pp. (67-1)-(67-10), Boca Raton, FL: CRC Press, Inc. and IEEE Press, 1998.
55. *The Handbook of Digital Signal Processing*, (V.K. Madisetti and D.B. Williams, Eds.), Boca Raton, FL: CRC Press, Inc. and IEEE Press, 1998.
56. Y. Seliktar, D.B. Williams, and E.J. Holder, "Adaptive monopulse processing in the presence of TSI and mainbeam jamming," *Proc. of the Adaptive Sensor Array Processing Workshop*, pp. 103-120, Lexington, MA, March 1998.
57. Y. Seliktar, D.B. Williams, and E.J. Holder, "An adaptive monopulse processor for angle estimation in a mainbeam jamming and coherent interference scenario," *Proc. of the IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 4, pp. 2037-2040, Seattle, WA, May 1998.
58. J.D. Terry and D.B. Williams, "An adaptive beamspace algorithm for mobile satellite communications using orthogonal waveforms and convolutional codes," *Proc. of the Int. Symp. on Circuits and Systems*, vol. 5, pp. 313-316, Monterey, CA, June 1998.
59. S.M. Kogon, D.B. Williams, and E.J. Holder, "Exploiting coherent multipath for mainbeam jammer suppression," *IEE Proc.-Radar, Sonar, and Navigation: Special Issue on Spectral Analysis Applications in Radar*, vol. 145, no. 5, pp. 303-308, October 1998.
60. Y. Seliktar, D.B. Williams, and E.J. Holder, "Adaptive monopulse processing of monostatic clutter and coherent interference in the presence of mainbeam jamming," *Proc. of the Asilomar*

*Conf. on Signals, Systems, and Computers*, vol. 2, pp. 1517-1521, Pacific Grove, CA, November 1998. **(invited paper)**

61. M. Ciftci and D.B. Williams, "A novel channel equalizer for chaotic digital communications systems," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 3, pp. 1301-1304, Phoenix, AZ, March 1999.
62. Y. Seliktar, D.B. Williams, and E.J. Holder, "Beam-augmented space-time adaptive processing," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 5, pp. 2849-2852, Phoenix, AZ, March 1999.
63. K.F. Lee and D.B. Williams, "A space-time coded transmitter diversity technique for frequency selective fading channels," *Proc. IEEE Sensor Array and Multichannel Signal Processing Workshop*, pp. 149-152, Cambridge, MA, March 2000. **(invited paper)**
64. Y. Seliktar, D.B. Williams, and E.J. Holder, "Beam-augmented STAP for joint clutter and jammer multipath mitigation," *IEE Proceedings - Radar, Sonar and Navigation*, vol. 147, no. 5, pp. 225-232, October 2000.
65. D.V. Anderson, T.P. Barnwell, J.D. Echard, M.H. Hayes III, J.R. Jackson, R.W. Schafer, and D.B. Williams, "An On-line DSP Course for Practicing Engineers," *Proc. IEEE Signal Processing Education Workshop*, Hunt, TX, October 2000. **(invited paper)**
66. D.B. Williams and T.P. Barnwell, "DSP Courses at Georgia Tech - Ramblin' Wreck or a Helluva Curriculum?" *Proc. IEEE Signal Processing Education Workshop*, Hunt, TX, October 2000. **(invited paper)**
67. K.F. Lee and D.B. Williams, "A space-frequency transmitter diversity technique for OFDM systems," *Proc. IEEE Global Telecommunications Conf.*, vol. 3, pp. 1473-1477, San Francisco, CA, November 2000.
68. J. Heiskala and J. Terry, *OFDM Multicarrier Wireless Networks: A Practical Approach*, (D.B. Williams and T. Reid, Technical Editors), SAMS Publishing, 2001.
69. K.F. Lee and D.B. Williams, "A multirate pilot-symbol-assisted channel estimator for OFDM Transmitter Diversity Systems," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 4, pp. 2409-2412, Salt Lake City, UT, May 2001.
70. J.R. Jackson, T.P. Barnwell, D.B. Williams, M.H. Hayes, D.V. Anderson, and R.W. Schafer, "DSP for Practicing Engineers: An online course for continuing DSP education," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, Salt Lake City, UT, May 2001.
71. M. Ciftci and D.B. Williams, "A sequential channel equalization algorithm for chaotic communication systems," *Proc. IEEE-EURASIP Nonlinear Signal and Image Processing Workshop*, Baltimore, MD, June 2001.
72. M. Ciftci and D.B. Williams, "Dynamics-based blind equalization for chaotic communications systems," *Proc. IEEE-EURASIP Nonlinear Signal and Image Processing Workshop*, Baltimore, MD, June 2001.

73. N.B. List and D.B. Williams, "Low complexity long interleaver design for turbo codes," *Proc. 39<sup>th</sup> Annual Allerton Conference on Communication, Control, and Computing*, Allerton, IL, October 2001.
74. M. Ciftci and D.B. Williams, "Optimal estimation for chaotic sequences using the Viterbi algorithm," *Proc. Asilomar Conf. on Signals, Systems, and Computers*, vol. 2, pp. 1094-1097, Pacific Grove, CA, November 2001.
75. M. Ciftci and D.B. Williams, "Optimal estimation and channel equalization for chaotic communications systems," *EURASIP Journal of Applied Signal Processing, Special Issue on Nonlinear Signal and Image Processing*, vol. 2001, no. 4, pp. 249-256, December 2001.
76. N.B. List and D.B. Williams, "Low complexity design of interleavers for serial concatenated convolutional codes," *Proc. Conf. on Information Sciences and Systems*, Princeton, NJ, March 2002.
77. K.F. Lee and D.B. Williams, "Pilot-symbol-assisted channel estimation for space-time coded OFDM systems," *EURASIP Journal of Applied Signal Processing, Special Issue on Space-Time Coding and Its Applications*, vol. 2002, no. 5, pp. 507-516, May 2002.
78. R.G. Baraniuk, C.S. Burrus, B.M. Hendricks, G.L. Henry, A.O. Hero, III, D.H. Johnson, D.L. Jones, J. Kusuma, R.D. Nowak, J.E. Odegard, L.C. Potter, K. Ramchandran, R.J. Reedstrom, P. Schniter, I.W. Selesnick, D.B. Williams, and W.L. Wilson, "Connexions: DSP education for a networked world," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 4, pp. IV-4144 – IV-4147, Orlando, FL, May 2002. (**invited paper**)
79. M. Ciftci and D.B. Williams, "Channel equalization for multiuser chaotic communications systems," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 2, pp. II-1113 – II-1116, Orlando, FL, May 2002.
80. K.F. Lee and D.B. Williams, "Bandwidth efficient OFDM transmitter diversity techniques," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 3, pp. III-2325 – III-2328, Orlando, FL, May 2002.
81. M. Ciftci and D.B. Williams, "An optimal estimation algorithm for multiuser chaotic communications systems," *Proc. IEEE Int. Symposium on Circuits and Systems*, vol. 1, pp. I-397 – I-400, Scottsdale, AZ, May 2002.
82. P. Hong, J. Jackson, T. Barnwell, D. Williams, M. Hayes III, D. Anderson, and R. Schafer, "A follow-up to 'DSP for Practicing Engineers' offered by Georgia Tech," *Proc. ASEE Annual Conf. & Exposition*, Montreal, Quebec, Canada, June 2002.
83. F. Fekri and D.B. Williams, "Multicarrier modulation via finite-field transforms," *Proc. IEEE DSP Workshop*, pp. 16-19, Pine Mountain, GA, October 2002.
84. J.H. Son and D.B. Williams, "A blind symbol recovery for dual antenna OFDM systems," *Proc. IEEE DSP Workshop*, pp. 29-34, Pine Mountain, GA, October 2002.
85. D.B. Williams, J.R. Jackson, and M.H. Hayes, III, "Georgia Tech's online continuing education DSP program," *Proc. IEEE Signal Processing Education Workshop*, pp. 192-194, Pine Mountain, GA, October 2002.

86. K.F. Lee and D.B. Williams, "A channel estimator for OFDM transmitter diversity systems without a cyclic prefix," *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing*, vol. 4, pp. IV-672 – IV-675, Hong Kong, China, April 2003.
87. N.B. List and D.B. Williams, "Improved s-random interleaver design for serially concatenated convolutional codes," *Proc. Canadian Workshop on Information Theory*, pp. 196-199, Waterloo, Ontario, Canada, May 2003.
88. J.D. Terry and D.B. Williams, "Convergence analysis of finite alphabet beamformers for digital co-channel signals," *IEEE Trans. on Communications*, v. 51, no. 6, pp. 929-939, June 2003.
89. S. Ozgur and D.B. Williams, "Multi-user detection for mutually orthogonal sequences with space-time coding," *Proc. IEEE Vehicular Technology Conference*, vol. 1, pp. 527-531, Orlando, FL, October 2003.
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**Published Papers (non-refereed):**

1. D.B. Williams, "Where do special issues come from?" *IEEE Signal Processing Magazine* – 'from the Editor' column, v. 23, no. 4, p. 2, July 2006.
2. D.B. Williams, "Special issues across the society," *IEEE Signal Processing Magazine* – 'from the Editor' column, v. 24, no. 4, pp. 2 and 4, July 2007.
3. D.B. Williams, "Periodically reconsidering the impossible," *IEEE Signal Processing Magazine* – 'from the Editor' column, v. 25, no. 2, pp. 2 and 4, March 2008.
4. D.B. Williams and R.G. Baraniuk, "Scanning the issue: Special issue on educational technology," *Proceedings of the IEEE*, v. 96, no. 6, pp. 913-916, June 2008.

## V. SERVICE

### A. Professional Contributions

#### 1. Editorial Activities

Co-editor for the *Electronic Newsletter on Digital Signal Processing*, 1990-1996

Associate Editor, *IEEE Transactions on Signal Processing*, 1992-1996

Associate Editor, *EURASIP Journal on Applied Signal Processing*, 2003-2008

Editorial Board, *IEEE Signal Processing Magazine*, 2005-present

Area Editor, Special Issues, *IEEE Signal Processing Magazine*, 2006-present

Guest Editor (with R. Baraniuk), *Proceedings of the IEEE, Special Issue on Educational Technology*, June 2008

#### 2. Conference Leadership

Conference session chair, IEEE International Conference on Acoustics, Speech, and Signal Processing, 1992

Conference session chair, IEEE Dual-Use Technologies and Applications Conference, 1995

Registration Chairman, IEEE International Conference on Acoustics, Speech, and Signal Processing, 1996

Conference session co-chair, Asilomar Conference On Signals, Systems, and Computers, 1997

Co-chair, 2002 IEEE DSP Workshop and Signal Processing Education Workshops

Conference session chair, IEEE International Conference on Acoustics, Speech, and Signal Processing, 2004

Conference session chair, IEEE DSP Workshop, 2004

Conference session chair, IEEE International Conference on Acoustics, Speech, and Signal Processing, 2005

#### 3. IEEE Signal Processing Society Positions

Faculty Advisor, Georgia Tech Student Chapter of the IEEE Signal Processing Society, 1994-present

Member, IEEE Signal Processing Society's Signal Processing Theory and Methods Technical Committee, 2002-2007

Member, IEEE Signal Processing Society's Signal Processing Education Technical Committee, 2003-present

Member-at-Large, IEEE Signal Processing Society's Board of Governors, 2004-2006

Member, Lensing Oversight Committee for IEEE Signal Processing Society/Connexions Pilot Project, 2007-present

## **B. Campus Contributions**

### **1. School of Electrical and Computer Engineering**

Standing School Committees:

School of ECE Student-Faculty Committee, 1989-1994

School of ECE TQM Computer Support Committee, 1992

School of ECE Seminar Committee, 1994-1997 (Chair 1996-1997)

School of ECE Computer Resources Committee, 1992-1993, 1997-2001  
(Chair 1999-2000)

School of ECE Education and Research Technology Transfer Committee, 2001-2002

School of ECE Faculty Recruitment Committee, 2002-2003

School of ECE Undergraduate Committee, 2003-present

School ECE Reappointment, Tenure, and Promotion Committee (GT-Savannah representative, 2002-2006; Academic Programs representative, 2006-present)

School of ECE Statutory Advisory Committee, 2003-2006

Faculty sponsor, Digital Signal Processing Colloquium, 1991-1997

#### **Advisory/Leadership Roles:**

ECE Liaison to the Georgia Tech Regional Engineering Program, 2002-2005

Faculty advisor, Women of ECE, 2004-present

Associate Chair, ECE Undergraduate Affairs, 2003-present

### **2. Institute Committees and Programs**

Institute Graduate Committee, 1993

Participated in Dean's Scholar Day, 1992

Faculty friend in the ASSET program, 1992-1993

Participated in "Connect with Tech," 1994-1996, 2003-2006

Academic Senate (Georgia Tech-Savannah representative), 2003-2006

Institute Undergraduate Curriculum Committee, 2004-2007

Institute Study Abroad Committee, 2004-present (Chair, 2005-2007)

Institute International Plan Committee, 2005-present

Institute Task Force on Engineering Ethics, 2004-2006

Institute Advisory Technology Fee Committee, 2006-2008 (Chair, 2007)

Institute Executive Board, 2006-present (Vice Chair, 2008-09)

**3. Research Center Activity**

Center for Signal and Image Processing, 1989-present

Georgia Tech Broadband Institute, 1998-2002

Arbutus Center for Distributed Engineering Education, 1999-present

**C. Other Contributions**

Consulting: 3M, St. Paul, MN, 1992-1994. Design of real-time adaptive filters for estimating assembly line vibrations at low signal-to-noise ratios in a very unusual noise environment.

Director, Rice University Alumni Board, 2001-2004.

Rice University Alumni Admissions Interviewer, 1994-present.

**VI. HONORS AND AWARDS**

Member of Phi Beta Kappa, Tau Beta Pi, and Eta Kappa Nu honor societies

Fellow, Will Rice College, Rice University, 1984

NCR Outstanding Senior Electrical Engineering Student, 1984

NASA Graduate Student Research Fellowship, 1985-1989

GE Young Faculty Award, 1990

National Science Foundation Research Initiation Award, 1990

IEEE, Senior Member, 2004

Georgia Tech's Women in Engineering "Excellence Faculty Mentoring Award," 2005