

Michael Allen Jensen

Ira A. Fulton College of Engineering
Department of Electrical and Computer Engineering
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Education

Ph.D. in Electrical Engineering/Electromagnetics (1994) GPA: 4.0/4.0
University of California, Los Angeles
Minors: Quantum Electronics, Circuits and Signal Processing
Dissertation: *Time-Domain Finite-Difference Methods in Electromagnetics: Application to Personal Communications*

M.S. in Electrical Engineering/Electrosiences (1991) GPA: 4.0/4.0
Brigham Young University
Thesis: *Controllable Cladding Removal for In-Fiber Integrated Optics Components*

B.S. in Electrical Engineering/Electronics (1990 – Summa Cum Laude) GPA: 4.0/4.0
Brigham Young University

Experience

Dean (2016-present)
Ira A. Fulton College of Engineering, Brigham Young University

University Professor (2013-present)
Department of Electrical and Computer Engineering, Brigham Young University

Department Chair (2006-2012)
Department of Electrical and Computer Engineering, Brigham Young University

Professor (2005-2013), **Associate Professor** (2000-2005) and **Assistant Professor** (1994-2000)
Department of Electrical and Computer Engineering, Brigham Young University

Founder (2004)
RFWare, LLC

Co-Founder and Member of the Board
Wavetronix Rail, LLC and Island Radar, LLC (2018-present)

Co-Founder and Member of the Management Board
Wavetronix, LLC (2000-present)

Co-Founder and Member of the Management Board
AJ Design Group, Inc (1998-2014)

Visiting Researcher (June-July 1995)
Department of Electrical Engineering, UCLA

Consultant (1993-present)
Antenna design, wireless communications system design, legal issues and expert witness

Honors

Ernst and Young Entrepreneur of the Year: Utah Region, 2020
University Professorship, Brigham Young University, 2013.
Elevated to Fellow of the Institute of Electrical and Electronics Engineers, 2008.
Karl G. Maeser Research and Creative Arts Award, BYU, August 2005.
Best Overall Conference Paper Award: *40th International Telemetry Conference*, 2004.
Ward Endowed Chair Recipient: Dept. of Electrical and Computer Engineering, 2003-2006.

Harold A. Wheeler Applications Prize Paper Award, *IEEE Trans. Antennas and Propag.*, 2002.
Educator of the Year Award, Dept. of Electrical and Computer Engineering, BYU, 2002, 2003, 2007.
Outstanding Faculty Member Award, Dept. of Electrical and Computer Engineering, BYU, 1998.
Best PhD Award, UCLA School of Engineering and Applied Science, 1995
NASA Certificate of Achievement, 1994
Best Student Paper Award, IEEE AP-S Symposium, 1993
Graduate Fellowship, UCLA, 1991-1994
Ranked first in the Ph.D. qualifying examinations, UCLA
National Science Foundation Graduate Fellowship, 1990-1993
Hewlett-Packard – BYU Electrical Engineer of the Year, 1990

Professional Activities

Chair, IEEE Antennas and Propagation Society, Strategic Planning Committee, 2021-present
Member, IEEE PSPB Strategic Planning Committee, 2021-present
Chair, IEEE TAB Transactions Committee, 2020-present
President, IEEE Antennas and Propagation Society, 2016
President-Elect, IEEE Antennas and Propagation Society, 2015
Publications Committee Member, IEEE Antennas and Propagation Society, 2010-2014
Editor-in-Chief, *IEEE Trans. on Antennas and Propagation*, 2010-2013
Symposium Co-Chair, 2010, 2012, 2016 IEEE Intl. Conf. on Wireless Information Tech. and Systems, Honolulu, HI
Propagation Corner Editor, *IEEE Antennas and Propagation Magazine*, 2009-2010
Associate Editor, *IEEE Antennas and Wireless Propagation Letters*, 2009-2010
Guest Editor, *EURASIP Journal on Wireless Communications and Networking*, Special Issue on Advances in Propagation Modeling for Wireless Systems, 2008-2009
Chair, Joint AP-S/URSI Meetings Committee, 2008-2010
Guest Editor, *IEEE Trans. Antennas Propag.*, Special Issue on Wireless Communications, 2006
Elected to IEEE AP-S Administrative Committee: 3 year term 2005-2007
Symposium Co-Chair, 2007 IEEE AP-S International Symposium, Honolulu, HI
Symposium Co-Chair, 2005 IEEE Intl. Conf. on Wireless Comm. and Appl. Comp. Electromagnetics, Honolulu, HI
Chair, IEEE AP-S Ad Hoc committee on symposium format, 2004
Associate Editor, *IEEE Trans. Antennas Propag.*, 2003-2007
Member, Joint AP-S/URSI Meetings Committee, 2002-2007
Technical Program Committee, 2004 IEEE INFOCOMM
Symposium Co-Chair, 2003 IEEE AP-S Topical Conf. on Wireless Comm. Technology, Honolulu, HI
Technical Program Committee, IEEE Vehicular Technology Conference: Fall 2003, Spring 2005, Fall 2005, Fall 2008, Fall 2009
Special Session Organizer, 2002, 2004, 2005, 2008, 2010 IEEE AP-S International Symposia
Technical Program Committee, 2002-2014 IEEE AP-S International Symposia
Technical Program Co-Chair, 2000 IEEE AP-S International Symposium, Salt Lake City, UT
Organizer, 1999 NSF Workshop in Radio Frequency MEMS
Symposium Co-Chair, 1998 and 1999 Applied Computational Electromagnetics Symposia
Short Course Presentation, 1996, 1997, 1998 IEEE AP-S International Symposia
Regular Session Chair at International Symposia
Frequent Reviewer, *IEEE Trans. Antennas Propag.*, *IEEE Trans. Wireless Comm.*, *IEEE Trans. Veh. Tech.*, etc.
IEEE Student Chapter Advisor, BYU, 1995
Member of Eta Kappa Nu and Tau Beta Pi

University Committee Work

University Council on Rank and Status, 2015-2016
University Awards Committee, 2014-2015
University Department Chair Coordinating Committee, 2009-2012
College of Engineering Dean's Search Committee Member, 2004
Graduate Coordinator, Associate Chair, and Department Executive Committee Member, 2003-2006
Department Faculty Recruiting Chair, 1999-2000
Graduate Committee Member, 1995-2003, 2013-2014
Student Chapter Advisor of the Institute of Electrical and Electronics Engineers, 1995

International Academic Service

PhD Dissertation Co-Referee: Technical University of Karlsruhe, Germany, May 2004.
PhD Dissertation Reviewer: University of Newcastle, Australia, June 2003
Helsinki University of Technology, January 2009
PhD External Examiner: Simon Fraser University, Canada, June 2011
University of Waterloo, Canada, December 2011
PhD Committee Member: University of Hawaii, February 2009
Lund University, Sweden, March 2009
PhD Defense Opponent: Uppsala University, Sweden, October 2002
Chalmers University, Sweden, May 2005, April 2013, November 2021
Lund University, Sweden, March 2009
Aalborg University, Denmark, November 2011, November 2014

Courses Taught

ECEn 191 Freshman Seminar
ECEn 360/361 Electromagnetics/Electromagnetics Lab
ECEn 380 Signals and Systems
ECEn 391 Junior Seminar
ECEn 460/461 Applied Electromagnetics/Applied Electromagnetics Lab
ECEn 462 Applied Electromagnetics
ECEn 464 Wireless Communication Circuits
ECEn 485 Digital Communication Theory
ECEn 491 Senior Seminar
ECEn 560 Advanced Electromagnetic Theory
ECEn 561 High-Frequency Circuits
ECEn 563 Computational Electromagnetics
ECEn 665 Antennas and Propagation for Wireless Communications
ECEn 686 Advanced Digital Communications
EngT 231 Foundations of Global Leadership

Teaching Evaluations

1994-2002: Average score of 6.4 out of a possible 7.0 (Department average: 5.4)
2002-Present: Average score of 7.1 out of a possible 8.0 (Department average: 6.4)
2002-Present: Average score of 7.3 out of a possible 8.0 (Excluding seminar classes)

Mentored Graduate Students

<i>PhD</i>		<i>MS</i>	
David Zaugg	current	Matthew Arnold	2018
Benjamin Arnold	current	Yanling Yang	2010
Attiya Mahmood	2018	Daniel Evans	2009
Rashid Mehmood	2015	Britton Quist	2006
Farnaz Karimdady	2013	Adam Anderson	2004
Britton Quist	2013	Scott Gunyan	2004
Yan Shi	2011	Justin Holzer	2004
Chan Chen	2010	Brandon Hunter	2003
Nicolas Bikhazi	2006	Jed Pack	2002
Matthew Morris	2005	David Zaugg	2001
Jon Wallace	2002	Thomas Karlinsey	1998
James Freeze	1998	Bruce Green	1997
		Michael LeFevre	1997

PUBLICATIONS

Journals

1. M. D. Arnold, R. Mehmood, and M. A. Jensen, "A reconfigurable over-the-air chamber for testing multi-antenna wireless devices", submitted to *IEEE Trans. Antennas and Propagation*, Sep. 2021.

2. B. T. Arnold and M. A. Jensen, "Efficient moment method modeling of a reconfigurable chamber for over-the-air mobile device testing", submitted to *IEEE Trans. Antennas and Propagation*, Jun. 2021.
3. J. W. Wallace, A. Mahmood, M. A. Jensen, and R. Mehmood, "Cooperative relative UAV attitude estimation using DOA and RF polarization," *IEEE Trans. Aerospace and Electronic Systems*, vol. 56, pp. 2689-2700, Aug. 2020.
4. A. Mahmood and M. A. Jensen, "Nonreciprocal radio system calibration for propagation-based key generation," *IEEE Trans. Antennas and Propagation*, vol. 67, Nov. 2019, 7050-7058.
5. B. T. Arnold and M. A. Jensen, "The effect of antenna mutual coupling on MIMO radar system performance," *IEEE Trans. Antennas and Propagation*, vol. 67, pp. 1410-1416, Mar. 2019.
6. R. Mehmood, J. W. Wallace, and M. A. Jensen, "Secure array synthesis in multipath channels," *IEEE Trans. Antennas and Propagation*, vol. 66, pp. 3383-3390, Jul. 2018.
7. J. W. Wallace, W. Ahmad, Y. Yang, R. Mehmood, and M. A. Jensen, "A comparison of indoor MIMO measurements and ray-tracing at 24 and 2.55 GHz," *IEEE Trans. Antennas and Propagation*, vol. 65, pp. 6656-6668, Dec. 2017.
8. A. Mahmood and M. A. Jensen, "Impact of propagation on the vulnerability of channel-based key establishment," *IEEE Trans. Antennas and Propagation*, vol. 64, pp. 1578-1583, Apr. 2016.
9. A. Mahmood and M. A. Jensen, "Impact of array mutual coupling on multi-antenna propagation-based key establishment," *IEEE Trans. Antennas and Propagation*, vol. 63, pp. 5063-5071, Nov. 2015. **Nominated for a prize paper award from the IEEE Antennas and Propagation Society**
10. B. T. Quist and M. A. Jensen, "Maximization of the channel-based key establishment rate in MIMO systems," *IEEE Trans. Wireless Communication*, vol. 14, pp. 5565-5573, Oct. 2015.
11. F. K. Sharifabad, M. A. Jensen, and A. L. Anderson, "Array beamforming synthesis for point-to-point MIMO communication," *IEEE Trans. Antennas and Propagation*, vol. 63, pp. 3878-3886, Sep. 2015.
12. R. Mehmood, J. W. Wallace, and M. A. Jensen, "Secure array synthesis," *IEEE Trans. Antennas and Propagation*, vol. 63, pp. 3887-3896, Sep. 2015.
13. R. Mehmood, J. W. Wallace, and M. A. Jensen, "Key establishment employing reconfigurable antennas: impact of antenna complexity," *IEEE Trans. Wireless Commun.*, vol. 13, pp. 6300-6310, Nov. 2014.
14. A. L. Anderson and M. A. Jensen, "A generalized sum-rate optimizer for cooperative multiuser massive MIMO link topologies," *IEEE Access*, vol. 2, pp. 1040-1050, 2014.
15. B. T. Quist and M. A. Jensen, "Bound on the key establishment rate for multi-antenna reciprocal electromagnetic channels" *IEEE Trans. Antennas and Propagation*, vol. 62, pp. 1378-1385, Mar. 2014. **Nominated for the R. W. P. King Award from the IEEE Antennas and Propagation Society**
16. B. T. Quist and M. A. Jensen, "Maximizing the secret key rate for informed radios under different channel conditions" *IEEE Trans. Wireless Commun.*, vol. 12, pp. 5146-5153, Oct. 2013.
17. B. T. Quist and M. A. Jensen, "Optimal channel estimation in beamformed systems for common-randomness-based secret key establishment," *IEEE Trans. Information Forensics and Security*, vol. 8, pp. 1211-1220, Jul. 2013.
18. F. K. Sharifabad, M. A. Jensen, and Z. Yun, "Closed-form evaluation of the MIMO channel spatial covariance," *IEEE Trans. Antennas Propag.*, vol. 61, pp. 901-909, Feb. 2013.
19. F. K. Sharifabad, M. A. Jensen, J. Medbo, and J. Furuskog, "Measurement-based performance analysis of cooperative MIMO beamforming," *IEEE Antennas and Wireless Propag. Lett.*, vol. 11, pp. 1394-1397, 2012.
20. A. L. Anderson and M. A. Jensen, "Sum-rate maximization in distributed-antenna heterogeneous MIMO downlinks: application to measured channels," *IEEE Journal on Selected Topics in Signal Processing*, vol. 6, pp. 270-280, June 2012.
21. B. K. Lau, M. A. Jensen, J. Medbo, and J. Furuskog, "Single and multi-user cooperative MIMO in a measured urban macrocellular environment," *IEEE Trans. Antennas Propag., Special issue on MIMO Systems*, vol. 60, no. 2, pp. 624-632, Feb. 2012.
22. Y. Shi and M. A. Jensen, "Improved radiometric identification of wireless devices using MIMO transmission," *IEEE Trans. Information Forensics and Security*, vol. 6, no. 4, pp. 1346-1354, Dec. 2011.

23. Y. Shi and M. A. Jensen, "Feedback reduction for CDI-based beamforming in the MIMO broadcast channel," *IEEE Communication Letters*, vol. 15, no. 4, pp. 431-433, Apr. 2011.
24. C. Chen and M. A. Jensen, "Secret key establishment using temporally and spatially correlated wireless channel coefficients," *IEEE Trans. Mobile Computing*, vol. 10, no. 2, pp. 205-215, Feb. 2011.
25. D. N. Evans and M. A. Jensen, "Near-optimal radiation patterns for antenna diversity," *IEEE Trans. Antennas Propag.*, vol. 58, no. 11, pp. 3765-3769, Nov. 2010.
26. M. A. Jensen and B. K. Lau, "Uncoupled matching for active and passive impedances of coupled arrays in MIMO systems," *IEEE Trans. Antennas Propag.*, vol. 58, no. 10, pp. 3336-3343, Oct. 2010.
27. B. T. Quist and M. A. Jensen, "Optimal antenna radiation characteristics for diversity and MIMO systems," *IEEE Trans. Antennas Propag.*, vol. 57, no. 11, pp. 3474-3481, Nov. 2009.
28. J. W. Wallace and M. A. Jensen, "Sparse power angle spectrum estimation," *IEEE Trans. Antennas Propag.*, vol. 57, no. 8, pp. 2452-2460, Aug. 2009.
29. C. Chen and M. A. Jensen, "A stochastic model of the time-variant MIMO channel based on experimental observations," *IEEE Trans. Vehicular Technology*, vol. 58, no. 6, pp. 2618-2625, Jul. 2009.
30. N. W. Bikhazi, M. A. Jensen, and A. L. Anderson, "MIMO signaling over the MMF optical broadcast channel with square-law detection," *IEEE Trans. Communications*, vol. 57, no. 3, pp. 614-617, Mar. 2009.
31. N. W. Bikhazi and M. A. Jensen, "Impact of coupling on MIMO capacity in correlated fast fading environments," *IEEE Trans. Vehicular Technology*, vol. 58, no. 3, pp. 1595-1597, Mar. 2009.
32. A. L. Anderson, J. R. Zeidler, and M. A. Jensen, "Reduced-feedback linear precoding with stable performance for the time-varying MIMO broadcast channel," *IEEE Journal on Selected Areas in Communications*, vol. 26, pp. 1483-1493, Oct. 2008.
33. B. T. Maharaj, J. W. Wallace, and M. A. Jensen, "A low-cost open-hardware wideband multiple-input multiple-output (MIMO) wireless channel sounder," *IEEE Trans. Instrum. Meas.*, vol. 57, pp. 2283-2289, Oct. 2008.
34. M. A. Jensen, B. T. Quist, and N. W. Bikhazi, "Antenna design for mobile MIMO systems," *IEICE Trans. on Communications, Special Issue on 2007 International Symposium on Antennas and Propagation*, vol. E91-B, No. 6, p. 1705-1712, Jun. 2008. **Invited**
35. A. L. Anderson, J. R. Zeidler, and M. A. Jensen, "Stable transmission in the time-varying MIMO broadcast channel," *EURASIP Journal on Advances in Signal Processing, Special Issue on MIMO Transmission with Limited Feedback*, vol. 2008, Article ID 617020, 14 pages, 2008. doi:10.1155/2008/617020
36. D. Pinchera, J. W. Wallace, M. D. Migliore, and M. A. Jensen "Experimental analysis of a wideband adaptive-MIMO antenna," *IEEE Trans. Antennas Propag.*, vol. 56, pp. 908-913, Mar. 2008.
37. J. W. Wallace and M. A. Jensen, "Electromagnetic considerations for communicating on correlated MIMO channels with covariance information," *IEEE Trans. Wireless Communications*, vol. 7, pp. 543-551, Feb. 2008.
38. M. A. Jensen and J. W. Wallace, "Capacity of the continuous-space electromagnetic channel," *IEEE Trans. Antennas Propag.*, vol. 56, pp. 524-531, Feb. 2008.
39. S. Wang, A. Abdi, J. Salo, H. El-Sallabi, J. Wallace, P. Vainikainen, M. A. Jensen, "Time-varying MIMO channels: parametric statistical modeling and experimental results," *IEEE Trans. Vehicular Technology*, vol. 56, part 2, pp. 1949-1963, July 2007.
40. K. F. Warnick and M. A. Jensen, "Optimal noise matching for mutually-coupled arrays," *IEEE Trans. Antennas Propag.*, vol. 55, pp. 1726-1731, June 2007.
41. J. W. Wallace, M. A. Jensen, A. Gummalla, and H. Lee, "Experimental characterization of the outdoor MIMO wireless channel temporal variation," *IEEE Trans. Vehicular Technology*, vol. 56, pp. 1041-1049, May 2007.
42. N. W. Bikhazi and M. A. Jensen, "The relationship between antenna loss and superdirectivity in MIMO systems," *IEEE Trans. Wireless Communications*, vol. 6, pp. 1796-1802, May 2007.
43. M. A. Jensen, M. D. Rice, and A. L. Anderson, "Aeronautical telemetry using multiple-antenna transmitters," *IEEE Trans. Aerospace Electronic Systems*, vol. 43, pp. 262-272, Jan. 2007.

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