TIMOTHY ALAN WILSON, SC.D., P.E.

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Education

Massachusetts Institute of Technology   **Cambridge, Massachusetts**

1994	Doctor of Science, Electrical Engineering
1987	Master of Science, Electrical Engineering
1985	Bachelor of Science, Electrical Engineering

Professional Registration

2007–present	State of Florida

Professional Experience

Embry-Riddle Aeronautical University   **Daytona Beach, Florida**

2010–present	Professor of Electrical and Computer Engineering, with Tenure
2010–present	Chair, Department of Electrical, Computer, Software, and Systems Engineering
2007–2010	Professor of Computer and Software Engineering, with Tenure
2005–2007	Associate Professor of Computer and Software Engineering, with Tenure
2001–2005	Associate Professor of Computer and Software Engineering
2000–2001	Visiting Assistant Professor of Computer Engineering

The University of Memphis   **Memphis, Tennessee**

1994–2000	Assistant Professor of Electrical Engineering

Publications

Journal Articles (Refereed)

Stansbury, R. S., Vyas, M. A., and Wilson, T. A. (2008), "A survey of UAS technologies for command, control, and communication (C3)." *Journal of Intelligent and Robotic Systems,* Vol. 54, pp. 61–78.

Book Chapters

Stansbury, R. S., and Wilson, T. A. (2015), "Technology Surveys and Regulatory Gap Analyses of UAS Sub-Systems toward Access to the NAS". In *Handbook of Unmanned Aerial Vehicles*, Kimon P. Valavanis and George J. Vachtsevanos (Eds.), Springer. (Publication forthcoming.)

Conference Papers (Refereed)

Rudolph, D., and Wilson, T. (2012), "Doppler velocity log theory and preliminary considerations for design and construction." *Proceedings* of the 2012 IEEE SoutheastCon.

Stansbury, R. S., Tanis, W., and Wilson, T. A. (2009), "A technology survey of emergency recovery and flight termination systems for UAS." *Proceedings* of the 2009 Infotech@Aerospace Conference.

Wilson, T. A. (2009). "Assessment based instruction applied to a course and lab in digital signal processing." *Proceedings* of the 2009 American Society for Engineering Education Southeast Section Conference.

Stansbury, R. S., Vyas, M. A., and Wilson, T. A. (2009), "A technology survey and regulatory gap analysis of command, control, and communication (C3) UAS technologies." *Proceedings* of the 2009 IEEE Aerospace Conference.

Griffis, C. L., Wilson, T. A., Schneider, J. A., and Pierpont, P.S. (2008), "Framework for the conceptual decomposition of unmanned aircraft propulsion systems." *Proceedings* of the 2008 IEEE Aerospace Conference.

Wilson, T. A. (2007). "Use of indicator courses in program outcomes assessment." *Proceedings* of the 2007 American Society for Engineering Education Southeast Section Conference.

Wilson, T. A., Davids, L. K., Eastlake, C. N., Ladesic, J. G., Behi, F., Fugler, M., Quinn, P., Lehr, S. and Grant. C. (2006). "Aerospace-focused multidisciplinary project-based introductory engineering course." *Proceedings* of the 2006 American Society for Engineering Education Southeast Section Conference.

Wilson, T. A., and Thongprasirt, R. (1997). "A point-process coincidence network for representing interaural delay." *Proceedings* of the International Conference on Neural Networks.

Cyphers, D. S., Kassel, R. H., Kaufman, D. H., Leung, H. C., Randolph, M. A., Senneff, S., Unverferth, J. E., III, Wilson, T. A., and Zue, V. W. (1986). "The development of the MIT lisp machine based speech research workstation." *Proceedings* of the International Conference on Acoustics, Speech, and Signal Processing.

Conference Papers, Workshops, Presentations, Posters, Abstracts, and Work-in-Progress Reports

Durant, E., Impagliazzo, J., Conry, S., McGettrick, A., Thornton, M., and Wilson, T. (2013). "Computer Engineering Curriculum Guidelines", Frontiers in Education Conference special session. *Proceedings* of the 2013 Frontiers in Education conference.

Wilson, T. A., and Stansbury, R. S. (2013). "Introduction to Arduino". *Proceedings* of the 2013 American Society for Engineering Education Southeast Section Conference.

Durant, E., Impagliazzo, J., Conry, S., McGettrick, A., Thornton, M., and Wilson, T. (2012). "CE2004 Revisions (Computer Engineering Curriculum Guidelines)", Frontiers in Education Conference special session. *Proceedings* of the 2012 Frontiers in Education conference.

Impagliazzo, J., Conry, S., Durant, E., McGettrick, A., Thornton, M., and Wilson, T. (2012). "Computer Engineering Review Task Force Report." *Proceedings* of the 2012 SIGSCE Technical Symposium.

Stansbury, R. S. Tanis, W., Davis, J., and Wilson, T. A. (2009), "UAS Emergency Recovery and Flight Termination: Technologies and Regulatory Gaps." SAE 2009 AeroTech Congress and Exhibition.

Griffis, C., and Wilson, T. (2009). "A Conceptual Framework for UAS Propulsion Applied to Risk and Regulatory Gap Analyses." SAE 2009 AeroTech Congress and Exhibition.

Stansbury, R. S. Tanis, W., Davis, J., and Wilson, T. A. (2009), "A Technology Survey and Regulatory Gap Analysis of Emergency Recovery and Flight Termination for UAS." *Proceedings* of AUVSI's Unmanned Systems North America 2009. Pathfinder Section Award for Best Technical Paper of conference.

Stansbury, R., Tanis, W., and Wilson, T. (2009). "UAS emergency recovery and flight termination: Technology survey and regulatory gap analysis." FAA Center for Excellence in General Aviation Conference.

Griffis, C., and Wilson, T. (2008). "UAS propulsion systems: Gap analysis/risk analysis." FAA Center for Excellence in General Aviation Conference.

Reynolds, C., and Wilson, T. (2008). "Detect, sense, and avoid: Regulatory gap analysis." FAA Center for Excellence in General Aviation Conference.

Stansbury, R., Vyas, M., and Wilson, T. (2008). "UAS technologies for command, control, and communication." FAA Center for Excellence in General Aviation Conference.

Griffis, C., Wilson, T., Schneider, J., and Pierpont, P. (2007). "Technology survey on UAS propulsion systems." FAA Center for Excellence in General Aviation Conference.

Schneider, J., Wilson, T., Griffis, C., and Pierpont, P. (2007). "Compression-ignition engine certification issues." FAA Center for Excellence in General Aviation Conference.

Wilson, T. A. (2002). "Application of peer-instruction concepts to engineering education." *Proceedings* of the 2002 Frontiers in Education Conference.

Wilson, T. A. (2001). "Autocorrelation estimation using a traveling-wave filterbank." *J. Acoust. Soc. Am.*, Vol. 110, No. 5, Pt. 2.

Thongprasirt, R., and Wilson, T. (2000). "Coincidence network for estimating tone frequency from firing-rate wavelength." *J. Acoust. Soc. Am.*, Vol. 107, No. 5, Pt. 2.

Wilson, T. A. (1999). "Is the cochlea a wavelet filterbank?" *J. Acoust. Soc. Am.*, Vol. 106, No. 3, Pt. 2.

Wilson, T. A. (1999). "Cochlear wavelength representation of acoustic frequency content." *J. Acoust. Soc. Am.*, Vol. 105, No. 2, Pt. 2.

Wilson, T. A. (1998). "Rejecting a constant-mass model for cochlear-partition dynamics." *Proceedings* of the Joint Meeting of the Acoustical Society of America and the International Conference on Acoustics.

Wilson, T. A. (1998). "Estimating sinusoidal frequency from cochlear-partition wavelengths." NATO Advanced Study Institute on Computational Hearing.

Wilson, T. A., Thongprasirt, R., and Khanifar, A. A. (1997). "A recovery model for coincidence neurons." *J. Acoust. Soc. Am.*, Vol. 102, No. 5, Pt. 2.

Wilson, T. A. (1996). "Mechanical cochlear-partition parameter variation in a box-cochlea model." *J. Acoust. Soc. Am.*, Vol. 100, No. 4, Pt. 2.

Wilson, T. A., and Siebert, W. M. (1994). "Global and local parameter and response attributes in a box-cochlea model." *J. Acoust. Soc. Am.*, Vol. 95, No. 5, Pt. 2.

Searle, C. E., Secker-Walker, H. E., Wilson, T. A., and Freeman, D. M. (1989). "Bidirectional transduction by haircells." *J. Acoust. Soc. Am.*, Vol. 85, Supplement 1.

Wilson, T. A. (1987). "AGC behavior of a recovery model for auditory neuron firings." *J. Acoust. Soc. Am.*, Vol. 82, Supplement 1.

Cyphers, D. S., Kassel, R. H., Kaufman, D. H., Leung, H. C., Randolph, M. A., Senneff, S., Unverferth, J. E., III, Wilson, T. A., and Zue, V. W. (1986). "The development of speech research tools on MIT's lisp machine-based workstations." *Proceedings* of the DARPA Speech Recognition Workshop.

Technical Reports

Stansbury, R. S. Tanis, W., Davis, J., and Wilson, T. A. (2009), "A technology survey and regulatory gap analysis of emergency recovery and flight termination systems for unmanned aircraft systems." FAA Technical Report DOT/FAA/AR-xx/xx. (Under review.)

Griffis, C., and Wilson, T. (2008). "FAA regulatory gap analysis: UAS propulsion systems." FAA Technical Report DOT/FAA/AR-xx/xx. (Under review.)

Reynolds, C. and Wilson, T. (2008). "Regulatory gap analysis: Detect, sense, and avoid technologies for UAS." FAA Technical Report DOT/FAA/AR-xx/xx. (Under review.)

Stansbury, R., Vyas, M, and Wilson, T. (2008). "UAS command, control, and communication (C3) technologies: Technology survey and regulatory gap analysis." FAA Technical Report DOT/FAA/AR-xx/xx. (Under review.)

Griffis, C., Wilson, T., Schneider, J., and Pierpont, P. (2007). "UAS propulsion systems technology survey." FAA Technical Report DOT/FAA/AR-09/11

Schneider, J., Wilson, T., Griffis, C., and Pierpont, P. (2007). "Heavy-Fueled Intermittent Ignition Engines: Technical Issues." FAA Technical Report DOT/FAA/AR-08/42.

Wilson, T. A., Pierpont, P., Roth, S., Schneider, J., and Griffis, C. (2006). "Evaluation and conceptual design of a high-reliability tactical unmanned aircraft avionics system." AAI Corporation.

Wilson, T. A. (2000). "Short-time spectral estimation using travelling-wave filterbanks." Air Force Research Labs, contract: F30602–99–C–0076.

Wilson, T. A. (1998). "Automated aural analysis." QuesTech, Inc.

Grants and Contracts

Embry-Riddle Aeronautical University

Pembridge, J., Holton, D., Steinbrener, H., and Wilson, T. (2013). "Encouraging the Use of Evidence-Based Instructional Practices through Research Initiatives: An Assessment of University Climate." National Science Foundation. $243,552.

Qu, Z. and Wilson, T. A. (2011). "Unmanned aircraft systems operations in national air space: A feasibility study at Daytona Beach International Airport." Florida High Tech Corridor Council and ERAU. $50,000.

Wilson, T. A., and Stansbury, R. (2008). "UAS emergency recovery and flight termination: Technology survey and regulatory gap analysis." FAA Center for Excellence in General Aviation Research. $91,117.

Wilson, T. A., Pierpont, P. S., and Stansbury, R. (2007). "Command, control, and communication for unmanned aircraft systems: Technology survey and regulatory gap analysis." FAA Center for Excellence in General Aviation Research. $86,126.

Wilson, T. A. and Pierpont, P. S. (2007). "Regulatory gap analysis for detect, sense, and avoid." FAA Center for Excellence in General Aviation Research. $79,327.

Wilson, T. A. and Pierpont, P. S. (2007). "Gap analysis/risk analysis for UAS propulsion systems." FAA Center for Excellence in General Aviation Research. $47,036.

Pierpont, P. S. and Wilson, T. A. (2006). "Technology survey on UAS propulsion systems." FAA Center for Excellence in General Aviation Research. $69,455.

Pierpont, P. S. and Wilson, T. A. (2006). "Compression-ignition engine certification issues." FAA Center for Excellence in General Aviation Research. $65,533.

Pierpont, P. S., and Wilson, T. A. (2005). "Evaluation and conceptual design of a high-reliability tactical unmanned aircraft avionics system." AAI Corporation. $220,000.

Wilson, T. A. (2002). ERAU Professional Development Fund. $2,475.

Hall, S. and Wilson, T. A. (2001). "Assessing the effectiveness of smart-deck technology for enhancing aircraft operations under IMC conditions." ERAU-SATS. $20,000.

Wilson, T. A. (2001). "Signal reconstruction from travelling-wave filterbank output maxima." ERAU Research Fund. $5000.

The University of Memphis

Wilson, T. A. (1999–2000). "Automated aural analysis." Air Force Research Labs, $128,000.

Wilson, T. A. (1998). "Automated aural analysis." QuesTech, Inc., $25,000.

Wilson, T. A. (1996–1997). "Signal approximation from noisy wavelet extrema." University of Memphis Faculty Research Grant, $4,000.

Teaching

Department of Electrical, Computer, Software, and Systems Engineering (and predecessors)
Daytona Beach Campus
Embry-Riddle Aeronautical University

Graduate course taught:
>   Certification of Unmanned Aircraft Systems

Undergraduate courses taught:

Computer Modeling and Simulation	Introduction to Computing for Engineers
Computing in Aerospace and Aviation	Introduction to Engineering
Control Systems Analysis and Design	Linear Circuit Analysis I
Control Systems Laboratory	Linear Circuit Analysis II
Digital Signal Processing	Organization of Programming Languages
Digital Signal Processing Laboratory	Signals and Systems / Signals and Filters
Electrical Engineering Laboratory I	Special Topics in Digital Signal Processing
Electrical Engineering Laboratory II	

Department of Electrical Engineering
The University of Memphis

Graduate courses taught:

Communication Systems	Machine Hearing and Speech Recognition
Digital Signal Processing	Random Signals and Noise

Undergraduate courses taught:

Basic Circuits	Electrical Engineering and Instrumentation
Circuit Analysis I	Electrical Engineering and Instrumentation Lab
Circuit Analysis Laboratory I	The Fourier Transform and Its Applications
Communication Systems	

Department of Electrical Engineering and Computer Science
Massachusetts Institute of Technology

Undergraduate sections taught as Instructor-G:

Structure and Interpretation of Computer Programs	Signals and Systems

Undergraduate labs and tutorials taught as a teaching assistant:

Structure and Interpretation of Computer Programs	Signals and Systems
Digital Signal Processing	

University Service

Embry-Riddle Aeronautical University

Service to the University:

2008–2009	Chair, Associate Vice President for Admissions and Financial Aid search committee
2006–2007	Search committee, Vice President for Institutional Advancement
Fall 2006	Task Force on Affordability and Student Debt
Fall 2006	Working Group on General Education
Fall 2006	Special Committee on Payroll Dates
Fall 2002	Authored successful proposal to create domestic-partner benfits

Service to the Daytona Beach Campus:

2011	Quality Enhancement Plan Working Group
2007–2009	Speaker of the Faculty (2-year term)
2006–2007	Vice-Speaker of the Faculty (1-year term)
2002–2006	Faculty Development and Benefits Committee (Chair, 2005–2006)
2002–2006	Faculty advisor, GALBA (Gay-Straight Alliance)
Spring 2004	Working group to establish a Peer-Mentor Program for gay students

Service to the College of Engineering:

2006–Present	College of Engineering Academic Council
2011–2013	Chair, College of Engineering Distinguished Faculty Search Committee
2007–2009	Chair, College of Engineering Assessment Committee
2007	Developed pilot continuing-education offering for COE
2006–2008	College of Engineering ABET Coordinating Committee
2005–2006	Lead, Working Group in Computer, Electrical, Software Engineering Research

2003–Present	College of Engineering Curriculum Committee
Summer 2004	Working Group to develop common first-year Introduction to Engineering course
Summer 2003	Authored proposal to create Bachelor of Science in Biomedical Engineering degree
Spring 2003	Lead, Working Group on Biomedical Engineering

Service to the Department of Computer and Software Engineering:

2001–2009	Lead, Department Undergraduate Programs assessment activities
2004–2007	Chair, Department Curriculum Committee
2006–2007	Computing Faculty Search Committee
2005–2006	Faculty Senate, Department Representative
2005–2006	Computing Faculty search committee
2004–2005	Chair, Computing Faculty search committee (successful hire)
Spring 2004	Leadership Committee
2003–2004	Program Review Working Group
2003–2004	Software Engineering ABET Working Group
2003–2004	Recruiting Committee
2001–2003	Department Curriculum Committee
2001–2003	Department Research and Scholarship Committee
2000–2003	Lead, Computer Engineering ABET accreditation activities
Fall 2002	Co-authored proposal to add Avionics concentration to B.S. Computer Engineering
Spring 2002	Co-authored proposal to fund procurement of laboratory equipment ($200,000)
2001–2002	Chair, Computing Faculty Search Committee (successful hire)
2001–2002	Leadership Committee
2001–2002	Enrollment and Retention Committee

The University of Memphis

Service to the University:

1995–1996	Working Group on University World Wide Web Presence

Service to the Herff College of Engineering:

1994–2000	EIT/FE Review
1997–1999	Supervised Research Experience for Undergraduates students

Service to the Department of Electrical Engineering:

1997–2000	Faculty Branch Counselor, IEEE Student Branch
1994–2000	Department Curriculum Committee
1998–1999	Electrical Engineering Faculty Search Committee
1996–1999	Webmaster, department web site
1996–1997	Organized bi-weekly research seminar series

Professional Service

American Society for Engineering Education

2013–Present	ASEE Diversity Committee
2013–Present	Vice-chair, Administrative division, Southeast region
2013–Present	Referee, SMART Scholarship Program
2012–2013	Secretary, Administrative division, Southeast region
2012–2013	Secretary, Electrical Engineering division, Southeast region
2011–2012	Chair, Electrical Engineering division, Southeast region

2010–Present	Paper Referee, ASEE Systems Engineering Division
2008–Present	Paper Referee, ASEE Southeast Regional Conference
2008–2009	Chair, Administrative division, Southeast section
2007–2008	Secretary, Administrative division, Southeast section
2007–2008	Vice-chair, Electrical Engineering division, Southeast section

Institute for Electrical and Electronics Engineers

2012–Present	Joint IEEE-CS/ACM Committee on CE2004 Revisions
2010–2012	Computer Engineering 2004 Revision Task Force
2008–Present	Paper Referee, Frontiers in Education Conference
2008–2011	Chair, Computer Society chapter, Daytona Beach section

National Organization of Gay and Lesbian Scientific and Technical Professionals

2007–Present	Board of Directors
2012	Session Chair, Out to Innovate Career Summit
2010	Panelist, Session Chair, Out to Innovate Career Summit

National Engineers Week Foundation / DiscoverE

| 2007–Present | National Engineers Week Foundation Diversity Council |
| 2009–2010 | Judge, Future Cities Competition |

National Sciences and Engineering Research Council of Canada

| 2011 | Proposal Evaluator |

Honors and Awards

Embry-Riddle Aeronautical University
Daytona Beach Campus

2012	Vision Award for Outstanding Leadership, ERAU Women's Center
2010	James E. Lewis Outstanding Service Award
2009	Best Technical Paper, AUVSI's Unmanned Systems North America 2009 (with Stansbury, et al.)
2009	Outstanding Faculty Researcher, FAA Center of Excellence in General Aviation Research
2009	Finalist, James E. Lewis Outstanding Service Award
2008	Boeing Welliver Summer Faculty Fellowship alternate
2007	Boeing Welliver Summer Faculty Fellowship alternate
2006	ASEE Summer Faculty Fellow (won award, unable to accept)
Fall 2005	Faculty Member of the Year nominee
Spring 2005	Faculty Member of the Year nominee
2004–2005	Outstanding Teacher Award finalist
2003–2004	Outstanding Teacher Award nominee

Massachusetts Institute of Technology

1989	Graduate Instructor (award and promotion from Teaching Assistant)
	Department of Electrical Engineering and Computer Science
1989	Sherman Fairchild Fellowship, Whitaker College

Professional Memberships

American Institute of Aeronautics and Astronautics (AIAA)
American Society for Engineering Education (ASEE)
Institute of Electrical and Electronics Engineers (IEEE), Senior Member
National Organization of Gay and Lesbian Scientific and Technical Professionals (NOGLSTP)

Professional Development and Workshops Attended

Out to Innovate Career Summit for LGBT Science, Technology, Engineering, and Mathematics Students and Professionals, Columbus, Ohio, October 2012
Leadership Skills for Engineering and Science Faculty, MIT, Cambridge, Massachusetts, June 2011
Out to Innovate Career Summit for LGBT Science, Technology, Engineering, and Mathematics Students and Professionals, Los Angeles, California, October 2010
Best Assessment Practices X, ABET, Atlanta, Georgia, April 2008
Signal Processing Education Workshop, IEEE, Grand Teton National Park, Wyoming, October 2006
Certification of Complex Electronic Hardware, RTCA, Washington, District of Columbia, May 2006
Engineering Research Council, ASEE, Arlington, Virginia, February 2006
Texas Instruments DSP Developers Conference, Houston, February 2005
Texas Instruments TMS320C6000 DSP Integration Workshop, Dallas, May 2004
Texas Instruments DSP Developers Conference, Houston, February 2004
Real-Time DSP for Educators, ASEE Conference, Nashville, 2003
Embedded Systems Conference, Chicago, 2002
Engineering Criteria 2000 Workshop, ABET, St. Louis, Missouri, 2000
NATO Advanced Study Institute on Computational Hearing, Il Ciocco, Italy, 1998
NSF-Sponsored Workshop on Teaching DSP using the TMS320C31, UMass Dartmouth, 1998

Consulting & Grant Support Teams

Interactive Pedagogy Development Team, 2010–2011
Signals and Systems Concept Inventory Development Team, 2006–2010