Eric Alan Durant, PhD, MBA

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Education

5/2011	**_Executive MBA_**
	University of Wisconsin, Milwaukee
1/2002	**_PhD / Electrical Engineering_**
12/1999	**_MSE / Electrical Engineering_**
	University of Michigan, Ann Arbor, MI
	Dissertation: _Hearing Aid Fitting with Genetic Algorithms_ Advisor: Gregory H. Wakefield, PhD Major / Minor: Signal Processing / Communications
5/1998	**_BS / Computer Engineering, with High Honors_**
	BS / Electrical Engineering, with High Honors
	Milwaukee School of Engineering
	Minor: Management Systems

Employment

9/2006–present	**_Program Director, Computer Engineering_**
	Milwaukee School of Engineering
	Develop and maintain industrial contacts, work with faculty to enhance the curriculum with emphasis on technical currency and innovation, champion extracurricular innovations to improve the student experience, administer program policies related to student advancement, transfer credit, etc., and report on and promote ongoing assessment activities
3/2002–present	**_Professor_**
	Milwaukee School of Engineering
	(Promoted from Associate Professor 7/2014; promoted from Assistant Professor 7/2008) Teach primarily in the Computer Engineering (CE) program. Meet with advisees quarterly to discuss academic and professional plans. Develop and execute various academic outreach programs for high school students
5/2003–present	**_Senior DSP Research Engineer II (every summer, sabbatical 2012–'13)_**
	Starkey Hearing Technologies, Berkeley, CA and Eden Prairie, MN
	• Developed applications of warped filterbanks and deep neural networks • Developed noise spectral shaping to optimize residual noise perceptual metrics • Developed and optimized beamforming algorithms to reject many types of unwanted noise while robustly focusing on the person in front of the hearing aid user • Developed robust perceptual rank inferencing methods with minimal task load • Designed and implemented experiments and experiment software infrastructure for genetic-algorithm-based parametric fitting of hearing aids • Key technologies used include MATLAB and Pocket PC (C++/MFC and C#/.NET 2.0 Compact Framework)
3/1999–1/2002	**_Graduate Student Research Assistant_**
	University of Michigan, Department of Electrical Engineering and Computer Science
	Performed genetic algorithm and perceptual tuning research
8/2000–1/2002	**_Advanced Research Team Member_**
	Starkey Hearing Technologies, Eden Prairie, MN
	Researched genetic algorithm based hearing aid fitting algorithm in conjunction with dissertation research, developed experimental fitting system in MATLAB, C, and Motorola 56k assembly
6/2000–7/2000	**_Technical Consultant_**
	Adapted Wave Technologies, Ann Arbor, MI
	Implemented fast block transform algorithms in C, multi-platform profiling and testing

6/1996– 9/1998	*Central Research Team Member*
	Johnson Controls, Inc., Glendale, WI
	Researched and developed smart building technologies. Responsibilities included: interfacing emulation software to DAQ/RIO, evaluating and interfacing softPLCs, presentations to management, ActiveX integration, TCP-level service programming, Web development including project tracking, GIS, and database integration
9/1996– 7/1998	*Webmaster*
	Milwaukee School of Engineering
	Researched user needs, trained and supported developers, wrote site automation software in C and Perl, integrated new and legacy database systems

Professional societies	IEEE Senior Member (Institute of Electrical and Electronics Engineers, S'93, M'02, SM'06) ASEE Member (American Society for Engineering Education, M'02)
Teaching experience	**Courses taught at Milwaukee School of Engineering** SE-1010: Software Development I (F'07, F'08), SE-1020: Software Development II (W'08-09), GE-110: Introduction to Engineering Concepts (F'03), CS-182: Computer Programming (S'02, W'02-03, S'03), CS-183: Software Design (Su'02), CE-1900: Digital Logic I: Combinational Systems (W'06-07, 2×W'07-08, 2×W'08-09, 2×F'09, W'09-10, 2×F'10, W'10-11, 2×F'11, W'11-12, 2.5×F'13, 2×F'14), CE-1910: Digital Logic II: Sequential Systems (S'08, S'09, W'10-11), CS-280: Embedded Systems Software (S'02, S'03, S'04, S'05, S'06), CS-285x: Data Structures (W'02-03, S'14), CE-2930: Introduction to Computer Architecture (S'09, S'10, S'11), CS-321: Computer Graphics (F'02, F'03, F'04), EE-3220: Digital Signal Processing (W'09-10, 2×W'13-14, 2×W'14-15, S'15), SE-380: Software Architecture (F'02), SE-3821: Software Requirements and Specification (W'03-04, F'04, F'05), CS-384: Design of Operating Systems (W'04-05, W'05-06), EE-393: VLSI Lab (S'07), CS/SE-40x: Senior Design Project (W'03-04 through S'07), CS-421: Advanced Computer Graphics (W'02-03, W'03-04, W'04-05), CS-489: Software Engineering Design (F'07, F'08), CS-4920: Information Security (S'06, S'07, S'08, 2×S'10, S'12, S'14, S'15), CS/SE-499: Independent Study (S'05, W'05-06, S'06) **Master's Projects chaired at Milwaukee School of Engineering** Emily Blakemore, "Audio Signal Compression Enhancements" (W'04-05 through S'05)
Honors and awards	STEM Forward Young Engineer of the Year (2013) Finalist for MSOE Oscar Werwath Distinguished Teacher Award (2012) Electrical Engineering and Computer Science Department Fellowship (University of Michigan, 1998–2002) Motorola Foundation fellowship (1999–2000) Alumni Association Student Achievement Award (Milwaukee School of Engineering, 1998) Newport Corporation Award of Excellence (for outstanding optics project, 1998) Fred F. Loock Outstanding Student Award (Milwaukee School of Engineering, 1997)
Patents granted	US Patent 8824711 granted September, 2014: Eric A. Durant, Ivo Merks, William S. Woods, Jinjun Xiao, Tao Zhang, and Zhi-Quan Luo, "Efficient convex optimization for real-time robust beamforming with microphone arrays." US Patent 8359283 granted January, 2013: Deniz Başkent and Eric A. Durant, "Genetic algorithms with robust rank estimation for hearing assistance devices." US Patent 7650004 granted January, 2010: Eric A. Durant, "Hearing aids and methods and apparatus for audio fitting thereof."
Patents pending	Application serial number 13/927,799, 899.360US1 (HR20121376), Application 20150003653, Karrie LaRae Recker and Eric A. Durant, "Methods and Apparatus for localization of Streaming Sources in Hearing Assistance System," filed June 26, 2013, published January 1, 2015. Application serial number 12/651154, application 20100172524: Eric A. Durant, "Hearing aids and methods and apparatus for audio fitting thereof." (Separate from the patent issued in 2010 despite the same title), filed December 31, 2009, published July 8, 2010.
Invited presentations	Eric Durant, "Perceptually Motivated ANC for Hearing-Impaired Listeners," IEEE Section Meeting, November, 2013, Milwaukee, WI (see "Conference Papers" re the underlying work). Henry Welch, Deepti Suri, and Eric Durant, "Using Targeted Assessments to Satisfy Achievement of Program Outcomes," *Best Assessment Processes (BAP) IX*, April, 2007, Terre Haute, IN. Eric A. Durant, Gregory H. Wakefield, Dianne J. VanTasell, and Martin E. Rickert, "Hearing Aid Fitting with a Genetic Algorithm," *International Hearing Aid Research Conference (IHCON)*, August, 2002, Lake Tahoe, CA.
Invited papers	Henry Welch, Deepti Suri, and Eric Durant, "Rubrics for Assessing Oral Communication in the Capstone Design Experience: Development, Application, Analysis and Refinement," *International Journal of Engineering Education (IJEE)*, 25(5), 2010.

Special sessions	E Durant, J Impagliazzo, S Conry, H Lam, R Reese, M Thornton, V Nelson, Setting the Stage for CE2016: A Revised Body of Knowledge, Special Session, *Proceedings of the Frontiers in Education Conference (FIE),* October 23, 2014, Madrid, Spain. E Durant, J Impagliazzo, S Conry, A McGettrick, M Thornton, T Wilson, Computer Engineering Curriculum Guidelines Pre-conference Workshop, *Proceedings of the Frontiers in Education Conference (FIE),* October 23, 2013, Oklahoma City, OK. Eric Durant, John Impagliazzo, Susan Conry, Andrew McGettrick, Mitch Thornton, and Timothy Wilson, "Special Session: CE2004 Revisions (Computer Engineering Curriculum Guidelines)," *Frontiers in Education (FIE) Conference*, October 6, 2012, Seattle, WA. John Impagliazzo, Susan Conry, Eric Durant, Andrew McGettrick, Timothy Wilson, and Mitch Thornton, "Special Session: Computer Engineering Review Task Force Report," *ACM Special Interest Group on Computer Science Education (SIGCSE) Conference*, March 2, 2012, Raleigh, NC.
Journal papers	Eric A. Durant, Gregory H. Wakefield, Dianne J. VanTasell, and Martin E. Rickert, "Efficient Perceptual Tuning of Hearing Aids with Genetic Algorithms," *IEEE Transactions on Speech and Audio Processing*, vol. 12, no. 2, March, 2004. Eric A. Durant and Gregory H. Wakefield, "Efficient model fitting using a genetic algorithm: Pole-zero approximations of HRTFs," *IEEE Transactions on Speech and Audio Processing*, vol. 10, no. 1, January, 2002.
Conference papers	Eric Durant, Jinjun Xiao, Buye Xu, Martin McKinney, and Tao Zhang, "Perceptually Motivated ANC for Hearing-Impaired Listeners," *Proceedings of the 2013 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA),* New Paltz, NY, October, 2013. Eric Durant, Ivo Merks, Bill Woods, Jinjun Xiao, Tao Zhang, and Zhi-Quan Luo, "Efficient convex optimization for real-time robust beamforming with microphone arrays," *Proceedings of the 2011 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP),* Prague, Czech Republic, May, 2011. Russ Meier, Steven L. Barnicki, William Barnekow, and Eric Durant, "Work in Progress - Year 2 Results from A Balanced, Freshman-first Computer Engineering Curriculum," *Proceedings of the 38th Annual Frontiers in Education (FIE) Conference,* October, 2008. [did not present] Owe Petersen, Stephen Williams, and Eric Durant. "Understanding ABET Objectives and Outcomes." *Proceedings of the 2007 ASEE Annual Conference,* Honolulu, HI, June, 2007. [did not present] Eric A. Durant, "Combining Requirements and Interdisciplinary Work," *Proceedings of the 2006 ASEE Annual Conference*, Chicago, IL, June, 2006. Henry L. Welch, Deepti Suri, and Eric Durant, "Rubrics for Assessing the Capstone Design Experience: Development, Application, Analysis and Refinement," *Best Assessment Processes (BAP) VIII*, Session 59, Terre Haute, IN, February, 2006. Deepti Suri and Eric Durant, "Teaching Requirements through Interdisciplinary Projects," *Proceedings of the 2004 ASEE North Midwest Regional Conference,* October, 2004.
Grants	NSF Grant 1338752, $10,000, co-PI with Mark Ardis of Stevens Institute of Technology, "Computer and Software Engineering Curricula Development Workshops," awarded 8/13/2013.
Professional activities	ABET Program Evaluator (PEV) for Computer Engineering programs and Electrical Engineering programs (7/2014–present; CE executed 11/2014) IEEE-CS chair of the CE2016/CE2004 (professional society guidelines for computer engineering curricula) joint revisions task force with ACM (2010–present) Program Committee Member for IEEE Workshop on the Applications of Signal Processing to Audio and Acoustics (WASPAA) (2003)
Professional activities – reviewer	IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) (2013) IEEE Workshop on the Applications of Signal Processing to Audio and Acoustics (WASPAA) (2011) International Journal of Engineering Education (2010) IEEE Transactions on Audio, Speech, and Language Processing (TASL) (2007) ASEE Annual Conference Papers, Software Engineering Constituent Committee (SwECC) (2005, 2006) IEEE Transactions on Image Processing (2005–2006) IEEE Transactions on Signal Processing (2005) All chapters of "Interactive Computer Graphics: A Top-Down Approach Using OpenGL™" 4ed (2004) IEEE Signal Processing Letters (2003)
Professional activities – participant[1]	ABET Evaluator Training (BMES, Chicago, 2006; ABET, Baltimore, 2014) KEEN (Kern Entrepreneurship Education Network) Milwaukee Conference (2008) KEEN Chicago Workshop (2007) KEEN Glendale, AZ Meeting (Thunderbird School of Global Management) (2007) Electrical and Computer Engineering Department Heads Association (ECEDHA) Annual Meeting (2007) Information Security and Advanced Information Security SEI week-long courses (2005) ASEE ExcEEd Effective Teaching Workshop (Santa Clara University, 2004) On-line Faculty Development Course (University of Wisconsin, 2003) ASEE North Midwest Section Conference (University of Wisconsin, 2003)

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[1] All conferences where a paper was given (listed above) were attended unless specifically noted. These and conferences where invited presentations or special sessions were given, also listed above, are not repeated in this section.

Company visits organized	QuadTech, Sussex, WI (10/2014) FedEx Ground/SmartPost, Cudahy/New Berlin, WI (4/2007, 7/2008, 11/2013) Rockwell Automation, Milwaukee, WI (1/2012) Plexus, Neenah, WI (1/2012) Rockwell Collins, Cedar Rapids, IA (8/2007 with alumni association; 12/2011 with student tour; attendee only 12/2013, 12/2014) Honeywell, Oak Creek, WI (2/2010) GE Healthcare, Wauwatosa, WI (2/2010) NVIDIA, Santa Clara, CA (7/2009) Stark Investments, Milwaukee, WI (7/2007) Direct Supply, Milwaukee, WI (3/2007)
Other extramural activities	University of Wisconsin–Milwaukee Executive MBA Alumni Board Member (2011-present) Science Fair Judge, University School of Milwaukee (2/2008, 2/2009, 2/2010, 2/2012, 2/2014, 2/2015) Judge for Johnson Controls high school robotics class capstone competition (8/2007, 8/2008, 8/2009) Volunteer for MSOE's Jazz in the Park activities through the East Town Association (2×2002, 2003, 2007)
University activities (MSOE)	Advise student Photography Club (9/2012–present) Advise student SCOE Robotics club (12/2010–present) Alumni Board Faculty Representative (2003–present) Wrote numerous student letters of recommendation (2003–present) Unofficial Photographer at scores of campus athletics and theater events, many published photos (2003-present) College Faculty Appointment and Review Committee (CFARC) (9/2014–5/2016, chair 9/2014–5/2015) Proctor/judge at CCDC (Collegiate Cyber Defense Competition) (2/2014, 2/2015) CIO Search and Interview Advisory Panel (8/2014–11/2014) Mentor Program (2003–2012, 2013–2014) Commencement (S'03, S'04, S'05, S'06, F'06, W'06–07, S'07, F'07, S'08, F'08, W'08–09, S'09, F'09, F'11, S'12, F'12, S'13, F'13, W'13–14, S'14, F'14) Representative at Alumni Association Reception for graduates (S'04, S'05, F'05 [gave speech], W'05–06, S'06, F'06, W'06–07, S'07, F'07, W'07-08, S'08, F'08, W'08–09, S'09, F'09, S'10, F'10, S'12, S'14) MSOE Faculty/Staff Book Club Facilitator (1/2014) Faculty Senate (6/2004–5/2006, 9/2008–5/2009, 9/2011–5/2012), Secretary (9/2005–5/2006, 9/2008–5/2009) Quiz Bowl Faculty Team (2003, 2004, 3/2005, 12/2005, 2006, 2007, 2008, 9/2009, 3/2011, 2012) Selection Committee, Daniel Sahs and Tom Davis student awards (9 times during 2005–2014) Volunteer, Midnight Breakfast (2/2003–2/2014, all 19 quarters offered, except during 2012–'13 sabbatical) Interviewer, President's Scholarship (9 times during 2003–2012); CE reception (2008) Moderator/Head Moderator, Regional Science Bowl (2003, 2004, 2005, 2006, 2007, 2008, 2009, 2012, 2014, 2015) Coordinator, Op Computer Programming Competition for high school students (10 times during 2002–2014) Engineering Discovery Day Keynote (2011) Benefits Committee Chair (2003–2010): led successful effort to increase 403(b) matching rate Web Advisory Team Member (2007–c. 2009) Nominator (successful) of student for Daniel Sahs Award for Service (4/2009) Member, Fall In-Service Committee (4/2009) Established "The Marilyn Durant Memorial Endowed Scholarship Fund" (1/2009) Judge, MLK Art Contest (1/2009) In-Service Presenter, "20 Great Reads" (8/2008) In-Service Presenter, "Senior Design" (8/2007) Coordinated IEEE Publications Services visit (IEEE Expert Now) for faculty (5/2007) Master of Ceremonies, Faculty and Staff Recognition Dinner (4/2007) Volunteer, Op Computer Programming Competition for high school students (2006, 2007) In-Service Presenter, "Developmental Advising" (8/2006) Advisor, *Ingenium* student newspaper (2002–2006) Volunteer, Campus Visit Day Luncheons (2003–2006, four times) Nominator (successful) of student for Outstanding Mentor Award (4/2004) Selection Committee, R. Pieper Endowed Chair for Servant-Leadership (2004) CSI (College Student Inventory) advisor training and advising (2004) Events Subcommittee, Centennial Celebration Committee (2002)

Department activities (MSOE EECS)	Advise CE students (2002–present) Represented department at most open houses (2002–present) Initiated and executed ongoing series of CE student social and networking events (4/2007, 12/2007, 9/2008, 3/2009, 9/2009, 3/2010, 9/2010, 3/2011, 9/2011, 3/2012, 9/2012, 10/2013, 3/2014, 9/2014) Initiated and organized EECS industry forum panel discussion for students (2010, 2011, 2012, 2014) Present and discuss CE program at Accepted Student Days (5×2013-'14, 5×2014-'15) Coordinated CE and SE senior class picture gift (2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014) Chaired EECS Chair faculty search (2012) Initiated and executed series of Rockwell Collins EECS Industry Day events for EECS students (12/2011) Organized and served as a proctor for IEEEXtreme worldwide student competition (2009, 2010, 2011; proctor only 2014) Launched semester exchange for CE students with Czech Technical University (CTU) (2010) Taught two- or three-day sequence in CE Focus summer program for high school students (2004–2008) Coordinate CE and SE senior design (5/2004–5/2007) Major updater of software tools used by students in embedded systems courses (2002–2006) Organized and presented SDL SQL Training Session (2003)
Research interests	Signal processing (convex optimization, beamforming, LMS applications, audio coding, image processing), neural networks, perceptual tuning, fast algorithms, and hearing