

Curriculum Vitae

D. Richard Brown III
Associate Professor
Worcester Polytechnic Institute
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Professional Appointments

- **Associate Professor**, WPI ECE Department, Worcester, MA. 2007 – present
- **Visiting Associate Professor**, Princeton University ELE Department, Princeton, NJ. 2007 – 2008
- **Assistant Professor**, WPI ECE Department, Worcester, MA. 2000 – 2006
- **Visiting Researcher**, Applied Signal Technology, Sunnyvale CA. April 1999
- **Design Engineer and Project Leader**, GE Industrial Systems, Plainville, CT. 1992 – 2000

Consulting Experience

- Expert witness and technical consultant on a wireless communication system patent infringement case for Hamilton, Brook, Smith and Reynolds, Concord, MA.
- Developed software-defined OFDM receivers for characterization of HDRadio signals for Broadcast Signal Lab, Medfield, MA.
- Investigated novel techniques for Stratum 3 clock and timing recovery in SONET networks for Litchfield Communications, Inc, Litchfield, CT. Also named as co-inventor on US patent application US2003227913(A1) “Adaptive Timing Recovery of Synchronous Transport Signals”.
- Investigated the applicability of multiuser detection techniques for crosstalk cancellation in digital subscriber loops for Aware, Inc., Bedford, MA.

Education and Training

- Cornell University, Ithaca, NY, Electrical Engineering, PhD 2000
- University of Connecticut, Storrs, CT, Electrical Engineering, MS 1996
- University of Connecticut, Storrs, CT, Electrical Engineering, BS 1992

Selected Refereed Journal Articles

- [1] J. Yang, A.G. Klein, and D.R. Brown III. Cooperation without extrinsic incentive mechanisms in wireless networks with selfish nodes. *Accepted to appear in IEEE Signal Processing Magazine*, 2009.
- [2] Man-On Pun, D.R. Brown III, and H.V. Poor. Opportunistic collaborative beamforming with one-bit feedback. *IEEE Transactions on Wireless Communications*, 8(5):2629–2641, May 2009.
- [3] J. McNeill, M. Cohn, D.R. Brown III, and B. Larivee. Split-ADC architecture for deterministic digital background calibration of a 16b 1MS/s ADC. *IEEE Transactions on Circuits and Systems*, 56(2):294–306, February 2009.
- [4] R. Mudumbai, D.R. Brown III, U. Madhow, and H.V. Poor. Distributed transmit beamforming: Challenges and recent progress. *IEEE Communications Magazine*, 47(2):102–110, February 2009.
- [5] D.R. Brown III and H.V. Poor. Time-slotted round-trip carrier synchronization for distributed beamforming. *IEEE Transactions on Signal Processing*, 56(11):5630–5643, November 2008.
- [6] K. Zeng, W. Lou, J. Yang, and D.R. Brown III. On throughput efficiency of geographic opportunistic routing in multihop wireless networks. *Mobile Networks and Applications*, April 10 2008. <http://www.springerlink.com/content/832673814qv34204>.

- [7] D.R. Brown III, K. Keenaghan, and S. Desimini. Measuring glottal activity during voiced speech using a tuned electromagnetic resonating collar sensor. *Measurement Science and Technology*, 16(11):2381–2390, November 2005.
- [8] D.R. Brown III, J.A. Slater, and A.E. Emanuel. A wireless differential protection system for air-core inductors. *IEEE Transactions on Power Delivery*, 20(2):579–587, April 2005.
- [9] D.R. Brown III. Multistage parallel interference cancellation: Convergence behavior and improved performance through limit cycle mitigation. *IEEE Transactions on Signal Processing*, 53(1):283–294, January 2005.
- [10] D.R. Brown III, H.V. Poor, S. Verdu, and C.R. Johnson Jr. Multiuser detection for out-of-cell cochannel interference mitigation in the IS-95 downlink. *Journal of VLSI: Signal Processing Systems for Signal, Image, and Video Technology*, 30(1-3):217–234, January-March 2002.
- [11] D.R. Brown III, M. Motani, V.V. Veeravalli, H.V. Poor, and C.R. Johnson Jr. On the performance of linear parallel interference cancellation. *IEEE Transactions on Information Theory*, 47(5):1957–70, July 2001.
- [12] C.R. Johnson, Jr., P. Schniter, T.J. Endres, J. Behm, D.R. Brown III, and R.A. Casas. Blind equalization using the constant modulus criterion: A review. *Proceedings of the IEEE, Special Issue on Blind System Identification and Estimation*, 86(10):1927–1950, October 1998.

Major Awards

- NSF CAREER award entitled “Cooperative Communication Systems: Resource Allocation, Self-Organization, and Synchronization” (CCF-0447743). January 2005.
- DARPA/NavSea award entitled “Robust Measurement of the Glottal Waveform Using a Coupled Microstrip Line Transverse Electromagnetic Resonator”. October 2002.
- Co-PI on NSF educational grant ASA: Using Assessment Information to Enhance Students Academic Progress (CCLI-ASA0206899). July 2002.

Patents

- Co-Inventor on provisional US Patent Application (#61/191,311) filed in the United States Patent and Trademark Office on the invention entitled “A Method for Synchronizing the Phase and Frequency of Two or More Wireless Transmissions” on Dec 12, 2008.
- Co-inventor on US Patent Application US2003227913(A1) “Adaptive Timing Recovery of Synchronous Transport Signals”. Application submitted in June 2002 by Litchfield Communications Inc., for work employed under a consulting agreement in 2001-2002.
- Co-inventor on US Patent number 6,901,299 “Man Machine Interface for Power Management Control Systems”. Application submitted in January 2002 by Cantor Colburn LLP for work performed while employed by General Electric in 1995-1996. Patent issued on May 31, 2005.
- Co-inventor on US Patent number 5,867,669, “Apparatus and Method for Upgrading Communication Functions”. Application submitted July 1995. Patent issued on February 2, 1999.
- Co-inventor on US Patent number 5,862,391, “Power Management Control System”. Application submitted April 1996. Patent issued on January 19, 1999.

Undergraduate Courses Taught at WPI

In addition to these courses, I have advised more than 30 major qualifying projects, 20 interactive qualifying projects, and several directed research and independent study projects with undergraduate students. These projects resulted in six published papers with undergraduate student co-authors.

Term	Number	Course Title	Enrollment	Lab
B08	ECE4703	Real-Time DSP	24	Y
A07-D08		<i>Sabbatical leave (Princeton University)</i>	—	—
D07	ECE230X	Intro to Communications and Networks	29	N
C07	ECE4304	Communication Systems Engineering	14	N
B06	ECE4703	Real-Time DSP	20	Y
C06	ECE4304	Communication Systems Engineering	10	N
B05	ECE3703	Real-Time DSP	21	Y
C05	ECE4304	Communication Systems Engineering	12	N
B04	ECE3703	Real-Time DSP	19	Y
C04	ECE4304	Communication Systems Engineering	22	N
A03	ECE4801	Advanced Computer System Design	14	Y
C03	ECE4801	Advanced Computer System Design	26	Y
A02	ECE4801	Advanced Computer System Design	18	Y
D02	ECE3803	Microprocessor System Design	24	Y
B01	ECE3803	Microprocessor System Design	35	Y
D01	ECE3803	Microprocessor System Design	43	Y
B00	ECE3803	Microprocessor System Design	21	Y

Graduate Courses Taught at WPI

In addition to these courses, I have advised eight dissertations and theses. I also teach an annual workshop at WPI entitled “Digital Signal Processing and Applications with the C6713 and the 6416 DSK”, sponsored by IEEE and Texas Instruments.

Term	Number	Course Title	Enrollment
Spring 2009	ECE531	Detection and Estimation	19
Fall 2008	ECE504	Deterministic Signals and Systems	18
Spring 2008	ELE530	Introduction to Detection and Estimation (Princeton University)	19
Spring 2004	ECE533	Advances in Digital Communications	4
Fall 2001	ECE533	Advances in Digital Communications	4
Fall 2000	ECE504	Deterministic Signals and Systems	7

Professional Society Memberships and Offices

Member of IEEE since 1997.