

CURRICULUM VITAE

Dr. Norman C. Beaulieu

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EDUCATION

Ph.D. University of British Columbia, August 1986
M.A.Sc. (first class standing) University of British Columbia, 1983
B.A.Sc. (with honours) University of British Columbia, 1980
Rank 1/75 Electrical Engineering Class
1/251 Applied Science Faculty

PROFESSIONAL EXPERIENCE

September 2000 - present Professor and iCORE Research Chair in Broadband Wireless Communications, University of Alberta
June 2012 – present Director of the Corporation, Canadian Society of Information Theory
December 8, 1995 - present Licenced Professional Engineer
Province of Ontario
January 2010 - present Board of Advisors
Eleven Engineering Incorporated, Edmonton, Alberta
October 2011 – October 2012 Adjunct Professor
King Abdulaziz University, Jeddah, Saudi Arabia
June 1996 - May 2012 President of the Canadian Society of Information Theory
September 2005 - August 2008 Adjunct Professor
Mathematics and Statistics, Queen's University
January 2001 - 2007 Canada Research Chair in Broadband Wireless Communications,
University of Alberta
March 2001 - November 2006 Director of the Corporation, Eleven Engineering Incorporated,
Edmonton, Alberta
September 2000 - Adjunct Professor

August 2005	Mathematics and Statistics, Queen's University
September 2000 - August 2001	Adjunct Professor Electrical and Computer Engineering, Queen's University
January 1998 - 2001	Project Leader Wireless Coding and Diversity Project; Communications and Information Technology Ontario (CITO)
July 1993 - August 2000	Professor Electrical Engineering, Queen's University
April 1995- August 2000	Cross-Appointed Professor Mathematics and Statistics, Queen's University
July 1995- June 1998	Associate Head Electrical and Computer Engineering, Queens University
April 1993 - December 1997	Project Leader Wireless Coding and Diversity Project; Telecommunications Research Institute of Ontario (TRIO)
June 1994 - May 1997	Project Leader Prototype wireless modem design and implementation project involving Queen's University, The National University of Singapore and the Singapore Centre for Wireless Communication
July 1993 - August 1995	Coordinator of Communications Research Group Queen's University
July 1988 - June 1993	Queen's National Scholar Associate Professor Electrical Engineering, Queen's University
September 1986 - June 1988	Queen's National Scholar Assistant Professor, Electrical Engineering, Queen's University

EDITORSHIPS

March 2012 - Present	Member of the Advisory Board of <i>IEEE Communications Letters</i>
Sept. 2010 - Present	Member of the <i>Central European Journal of Computer Science</i> Editorial Advisory Board, Versita
May 2010 - Present	Co-Editor-In-Chief of <i>Electronic Reference, Mobile and Wireless Communications</i> (Web Encyclopaedia on Wireless), Elsevier
July 2007 - Present	Senior Editor (Inaugural) of <i>Security and Communication Networks</i> , Wiley Interscience
January 1992 - April 2012	Editor for <i>Wireless Communication Theory of IEEE Transactions on Communications</i>
November 2000 - December 2006	Member of <i>The Proceedings of the IEEE</i> Editorial Board

January 2002 - Editor-in-Chief of *IEEE Transactions on Communications*
December 2003

January 2000 - Editor-in-Chief of *IEEE Transactions on Communications*
December 2001

October 1996 - Associate Editor for *Wireless Communication Theory of*
August 2003 *IEEE Communications Letters*

AWARDS AND ACHIEVEMENTS

2013 Local Innovation, Global Impact Patent Award, TEC Edmonton, US Patent: “Methods for UWB Channel Estimation”

2012 Fellow of the Institution of Engineering and Technology (IET), United Kingdom

2011 IEEE Communications Society (ComSoc) Radio Communications Committee (RCC) 2011 Technical Recognition Award for “contributions to radio communications research and practice.”

2011 IEEE Prize Paper Award, *2011 International Conference on Ultra-Wideband ICUWB*

2011(Winter) Perfect Teaching Evaluation Score 5.0/5.0

2010 IEEE Canada Reginald Aubrey Fessenden Silver Medal “For outstanding contributions in wireless communications theory”

2010 Canadian Award in Telecommunications Research

2010 Royal Academy of Engineering Distinguished Visiting Fellowship for “sharing first-hand in-sight into world-class cutting-edge knowledge, recognising excellence, and inspiring the next generation”

2010 IEEE Prize Paper Award, *2010 International Conference on Communications (ICC 2010) Wireless Communications Symposium*

2009 ISI Web of Knowledge, Web of Science citation h-index 41

2008 Listed in *MARQUIS Who's Who in the World*

2008 Listed in *MARQUIS Who's Who in America*

2008 IEEE Distinguished Lecturer

2007 IEEE Communications Society Edwin Howard Armstrong Achievement Award “For outstanding contributions to the analysis, design, and modeling of wireless communication systems”

2007 Selected to appear on Thomson Scientific's ISIHighlyCited.com

2007 IEEE Distinguished Lecturer

2007 Listed in *MARQUIS Who's Who in American Education*

2007 (Fall) Perfect Teaching Evaluation Score 5.0/5.0

- 2006 IEEE Prize Paper Award, *2006 International Conference on Ultra-Wideband ICUWB*
- 2006 Listed in *MARQUIS Who's Who in Science and Engineering*
- 2006 Fellow of the Canadian Academy of Engineering
- 2006 J Gordin Kaplan Award for Excellence in Research at the University of Alberta (the most prestigious University of Alberta research award)
- 2005 Featured in *Alberta Venture* Magazine Article November 2005, "ASTech Spotlight: Applying Math Theory to Improve Communications"
- 2005 Alberta Science and Technology (ASTech) Leadership Foundation Outstanding Leadership in Alberta Technology Award
- 2005 Featured in *TIME* Magazine Article August 15, 2005, "Made in Canada: Wired WOW – Bandwidth Leader, Norman Beaulieu"
- 2005 Awarded the largest Federal Individual Researcher Grant (NSERC Discovery Grant) in Electrical and Computer Engineering in Canada
- 2005 Thomas W. Eadie Medal of the Royal Society of Canada "In recognition of major contributions to Engineering or Applied Science"
- 2004 Médaille K.Y. Lo Medal of the Engineering Institute of Canada (EIC) "For significant engineering contributions at the international level"
- 2003 Listed in *Canadian Who's Who*
- 2002 Fellow of The Royal Society of Canada
- 2001 Fellow of the Engineering Institute of Canada (EIC)
- 2001 Canada Research Chair in Broadband Wireless Communications
- 2000 *iCORE* Research Chair in Broadband Wireless Communications
- 1999 Natural Sciences and Engineering Research Council (NSERC) E.W.R. Steacie Memorial Fellowship
- 1999 Fellow of the IEEE, "For contributions to the analysis and modeling of wireless data and digital communication systems"
- 1991 Short Listed for Queen's University Applied Science Faculty Teaching Award
- 1990 Nominated for Queen's University Applied Science Faculty Teaching Award
- 1989 Senior Member, Institute of Electrical and Electronic Engineers (IEEE)
- 1986 Queen's National Scholar

RESEARCH GRANTS AND CONTRACTS

Year	Individual or Group	Grantor	Type	Amount
2010-2013	Individual	NSERC	CRD	55,160

Year	Individual or Group	Grantor	Type	Amount
2010-2013	Individual	TELUS	Research	50,000
2012	Group (first student)	MITACS	Globalink	7,500
2012	Group (second student; declined)	MITACS	Globalink	7,500
2012	Group (third student; declined)	MITACS	Globalink	7,500
2011	Group	MITACS	Globalink	7,500
2010-2013	Group	NSERC	Strategic	144,000
2010-2011	Individual	AITF/iCORE	Research Chair	500,000
2005-2010	Individual	iCORE	Research Chair	4,208,000
2008-2013	Individual	NSERC	Discovery	77,962
2005-2008	Individual	NSERC	Discovery	85,000
2007-2010	Group	NSERC	Strategic	196,500
2007	Individual	CRC	Research	200,000
2006	Individual	CRC	Research	200,000
2005	Individual	CRC	Research	200,000
2004	Individual	CRC	Research	200,000
2002-2007	Group	NSERC	Strategic	1,000,000
2003	Individual	CRC	Research	200,000
2002-2004	Individual	Alberta INGENUITY Fund	Research	180,000
2001-2005	Individual	NSERC	Research	66,000/yr.
2000-2005	Individual	iCORE	Research Chair	3,500,000
2001-2002	Individual	NSERC	E.W.R. Steacie	144,405
2001-2002	Individual	NSERC	E.W.R. Steacie	90,000
2001-2003	Individual	CFI	Infrastructure	250,000
2002	Individual	CRC	Research	200,000
2001	Individual	CRC	Research	100,000
2001	Group, Co-investigator	CMC	Equipment	119,703
2000-2001	Individual	NSERC	E.W.R. Steacie	151,010
2000-2001	Individual	NSERC	E.W.R. Steacie	90,000
2000-2002	Individual	CITO Project	Research	180,000
2000-2002	Group, Co-investigator	CITO Project	Research	81,000
1999-2001	Individual	NSERC	Research	46,200/yr.
1998-2000	Group, Principal	CITO Project	Research	150,000

Year	Individual or Group	Grantor	Type	Amount
1998-2000	Group, Co-investigator	CITO Project	Research	75,000
1998-2000	Group, Co-investigator	CITO Project	Research	75,000
1998-1999	Individual	NSERC	Research	44,000
1998	Group, Principal	Nortel	Research	5,500
1996	Group, Principal	NSERC	Equipment	39,645
1997-1998	Individual	NSERC	Research	40,000
1995-1998	Group, Principal	NSERC	Strategic	370,350
1995-1997	Group, Principal	Ontario/Singapore	Research	149,765
1993-1997	Individual	NSERC	Research	31,000/yr.
1997	Group, Principal	TRIO/OS	Project	20,000
1997	Group, Co-investigator	NSERC	Equipment	36,285
1997	Group, Principal	Nortel	Research	5,000
1997-1998	Group, Principal	TRIO	Project	69,779
1996-1997	Group, Principal	TRIO	Project	58,000
1995-1996	Group, Principal	TRIO	Project	80,800
1994-1995	Group, Principal	TRIO	Project	86,900
1993-1994	Group, Principal	TRIO	Project	77,400
1991-1994	Group, Principal	NSERC	Strategic	396,000
1990-1993	Individual	NSERC	Operating	24,881/yr.
1988-1991	Group, Principal	NSERC	Strategic	175,000
1990-1992	Group, Co-investigator	CRC	Contract	137,025
1989	Individual	NSERC	Equipment	30,750
1988	Individual	NSERC	Equipment	23,110
1987-1990	Individual	NSERC	Operating	22,700/yr.
1987	Individual	NSERC	Equipment	14,640
1987	Group, Co-investigator	NSERC	Equipment	16,413

PLENARY LECTURES

- 2012 The 11th International Conference on INFORMATION SCIENCE, SIGNAL PROCESSING and Their Applications, ISSPA 2012, “Statistical and Intuitive Nonlinear Signal Processing Designs for Multiuser Interference Mitigation in UWB Systems,” Montréal, Canada, July 4, 2012.
- 2008 University of Ferrara UWB Workshop, *Ultrawide Bandwidth: A Paradigm for Tomorrow’s Networking Applications*, “UWB Receiver Designs for Multi-User Interference Environments,” University of Ferrara, Italy, June 10, 2008.

- 1999 *IEEE International Symposium on Wireless Communications (ISWC'99)*, "Sum-of-Sinusoids Fading Channel Simulators," Victoria, B.C., June 3, 1999.

KEYNOTE ADDRESSES

- 2013 *6th Joint IFIP/IEEE Wireless and Mobile Networking Conference (WMNC'2013)*, "A Novel Relaying Protocol for Cooperative Wireless Networks," Dubai, United Arab Emirates, April 24, 2013.
- 2012 *1st International Workshop on High Mobility Wireless Communications, (HMWC'2012)*, "Relay Switching Rates in Cooperative Fading Wireless Networks," Chengdu, Sichuan Province, China, November 12, 2012.
- 2012 *14th International Conference on Communication Technology ICCT*, "To Relay or Not to Relay in Cooperative Networks: That is the Green Question," Chengdu, Sichuan Province, China, November 10, 2012.
- 2011 *Ninth Annual Conference on Communication Networks and Services Research*, "Enhancing UWB Wireless Networks Using Multiuser Interference Sensing and Cancellation," Ottawa, ON, Canada, May 2, 2011.
- 2007 Electrical and Computer Engineering Graduate Student Association, University of Alberta (*ECEGSA*) *Graduate Research Symposium*, "Intellectual Property From An Academic Perspective," Edmonton, Alberta, Canada, May 3, 2007.
- 2004 *Second SPIE International Symposium on Fluctuations and Noise*, "Multiple Access Interference in Time Hopping Ultra-Wideband Radio," Maspalomas, Gran Canaria, Spain, May 26-28, 2004.

DISTINGUISHED SPEAKER SEMINARS

- 2013 *Distinguished Researcher Seminar*, "Cooperative Wireless Networks," University of Electronic Science and Technology of China (UESTC) Summer Communications Workshop, Chengdu, Sichuan Province, China, July 9, 2013.
- 2013 *Distinguished International Speaker University-Wide Seminar*, "Estimating the Location Parameter of the Generalized Gaussian Distribution," University of Electronic Science and Technology of China (UESTC), Chengdu, Sichuan Province, China, March 26, 2013.
- 2012 *Distinguished International Speaker*, "To Relay or Not to Relay in Cooperative Networks: That is the Green Question," University of Electronic Science and Technology of China (UESTC), Chengdu, Sichuan Province, China, November 15, 2012.
- 2012 *Distinguished International Speaker*, "To Relay or Not to Relay in Cooperative Networks: That is the Green Question," Southwest Jiaotong University (SWJTU), Chengdu, Sichuan Province, China, November 12, 2012.

- 2012 *Distinguished International Speaker*, “Outage Probability of Dual-Hop Amplify-and-Forward Opportunistic Relaying With Directional Antennas,” Electronic and Electrical Engineering Unit, Sungkyunkwan University, Suwon, South Korea, July 19, 2012.
- 2012 *Distinguished International Speaker*, “A Two-Dimensional Poisson Point Process Model for Amplify-and-Forward Relaying,” Electronic and Electrical Engineering Unit, Sungkyunkwan University, Suwon, South Korea, July 19, 2012.
- 2012 *Distinguished International Speaker*, “A Study of Multihop Amplify-and-Forward Relaying on Worst Case Fading Channels,” Electronic and Electrical Engineering Unit, Sungkyunkwan University, Suwon, South Korea, July 19, 2012.
- 2012 *Distinguished International Speaker*, “Exact Analysis of Multihop Amplify-and-Forward Cooperative Wireless Relaying Networks,” Electronic and Electrical Engineering Unit, Sungkyunkwan University, Suwon, South Korea, July 18, 2012.
- 2012 *Distinguished International Speaker*, “Optimal Wideband Spectrum Sensing Framework for Cognitive Radio Systems,” Electronic and Electrical Engineering Unit, Sungkyunkwan University, Suwon, South Korea, July 18, 2012.
- 2012 *Distinguished International Speaker*, “Node Switching Rates in Cooperative Wireless Relaying in Rician and Nakagami- m Fading,” Electronic and Electrical Engineering Unit, Sungkyunkwan University, Suwon, South Korea, July 18, 2012.
- 2011 *Distinguished Invited Speaker*, “Exact Analytical Solution for End-to-End SNR of Multihop AF Relaying Systems,” Massachusetts Institute of Technology (MIT), Laboratory for Information and Decision Systems (LIDS), Boston, MA, United States, October 13, 2011.
- 2011 *Distinguished International Speaker*, “Exact Analytical Solution for End-to-End SNR of Multihop AF Relaying Systems,” European Embedded Control Institute and University of L’Aquila, Networked Control System Laboratory, Center for Excellence DEWS, Department of Electrical and Computer Science, L’Aquila, Italy, September 20, 2011.
- 2010 *Distinguished International Speaker*, “Precise Approximations for the Average Symbol Error Probability of Amplify-and-Forward Two-Hop and Multi-Hop Relaying Systems in Nakagami- m Fading,” University of Tehran, School of Electrical and Computer Engineering, Tehran, Iran, November 24, 2010.
- 2010 *Distinguished International Speaker*, “Asymptotic Performance Analysis of Optimum Combining for Dense Multiple Antenna Reception Under Rayleigh Fading,” University of Tehran, School of Electrical and Computer Engineering, Tehran, Iran, November 24, 2010.

- 2010 *Distinguished International Speaker*, “Unified Theoretical Expressions for the Average Error Rate of Selection Diversity With Arbitrary Coded and Uncoded Modulation in Slow Rayleigh Fading and Their Applications to Analytical, Semi-Analytical, and Simulation Performance Evaluation,” University of Tehran, School of Electrical and Computer Engineering, Tehran, Iran, November 24, 2010.
- 2010 *Distinguished International Speaker*, “Node Switching Rates of Switch-and-Examine Relaying in Rician and Nakagami- m Fading,” University of Tehran, School of Electrical and Computer Engineering, Tehran, Iran, November 20, 2010
- 2010 *Distinguished International Speaker*, “Optimal Wideband Spectrum Sensing Framework for Cognitive Radio Systems,” University of Tehran, School of Electrical and Computer Engineering, Tehran, Iran, November 20, 2010
- 2010 *Distinguished International Speaker*, “A TH-UWB Wireless Receiver With Near-MUD Performance for Multiple Access Interference Applications,” University of Tehran, School of Electrical and Computer Engineering, Tehran, Iran, November 20, 2010
- 2010 *United Kingdom Royal Academy of Engineering Distinguished Visiting Fellow Lecture*, King’s College London, Division of Engineering, London, United Kingdom, October 19, 2010
- 2010 *United Kingdom Royal Academy of Engineering Distinguished Visiting Fellow Lecture*, University of Manchester, School of Electrical and Electronic Engineering, Manchester, United Kingdom, October 18, 2010.
- 2010 *United Kingdom Royal Academy of Engineering Distinguished Visiting Fellow Lecture*, University of Southampton, School of Electronics and Computer Science, Southampton, United Kingdom, October 15, 2010.
- 2010 *United Kingdom Royal Academy of Engineering Distinguished Visiting Fellow Lecture*, Heriot-Watt University, Electrical, Electronic and Computer Engineering Department, Edinburgh, United Kingdom, October 13, 2010. (Teleconferenced to the University of Edinburgh)
- 2010 *United Kingdom Royal Academy of Engineering Distinguished Visiting Fellow Lecture*, University of Warwick, School of Engineering, Warwick, United Kingdom, October 11, 2010.
- 2010 *Distinguished Speaker Seminar*, Carleton University, Broadband Communications and Wireless Systems Centre, Department of Systems and Computer Engineering, Ottawa, Ontario, July 13, 2010.
- 2010 *Distinguished Speaker Seminar*, Massachusetts Institute of Technology (MIT), Laboratory for Information and Decision Systems (LIDS), Boston, MA, United States, April 29, 2010.
- 2009 *Distinguished Speaker Seminar*, Massachusetts Institute of Technology (MIT), Laboratory for Information and Decision Systems (LIDS), Boston, MA, United States, December 17, 2009.

- 2009 *Distinguished Visitor Lecture*, University of Warwick, School of Engineering, Warwick, United Kingdom, December 10, 2009.
- 2009 *Distinguished Speaker Seminar*, University of Toronto, Electrical and Computer Engineering Department, Toronto, Ontario, April 27, 2009.
- 2008 *IEEE Communications Society Distinguished Lecturer*, IEEE Denmark Section, IDA (Danish Engineering Society), Copenhagen, Denmark, November 18, 2008.
- 2008 *IEEE Communications Society Distinguished Lecturer*, Aalborg University, Aalborg, Denmark, November 17, 2008.
- 2008 *IEEE Communications Society Distinguished Lecturer*, Lund University, Lund, Sweden, November 14, 2008.
- 2008 *IEEE Communications Society Distinguished Lecturer*, Chalmers University, Göteborg, Sweden, November 13, 2008.
- 2008 *IEEE Communications Society Distinguished Lecturer*, Linköping University, Linköping, Sweden, November 12, 2008.
- 2008 *IEEE Communications Society Distinguished Lecturer*, Oulu University, Oulu, Finland, November 10, 2008
- 2008 *IEEE Communications Society Distinguished Lecturer*, University of Newcastle, Newcastle, Australia, August 12, 2008.
- 2008 *IEEE Communications Society Distinguished Lecturer*, University of New South Wales, Sydney, Australia, August 11, 2008.
- 2008 *IEEE Communications Society Distinguished Lecturer*, Commonwealth Scientific and Industrial Research Organization (CSIRO), ICT Centre, Marsfield, Australia, August 11, 2008.
- 2008 *IEEE Communications Society Distinguished Lecturer*, Commonwealth Scientific and Industrial Research Organization (CSIRO), QCAT Exploration & Mining Internal Communications Group, Brisbane, Australia, August 8, 2008.
- 2008 *IEEE Communications Society Distinguished Lecturer*, James Cook University, Townsville, Australia, August 6, 2008.
- 2008 *IEEE Communications Society Distinguished Lecturer*, University of Adelaide, Adelaide, Australia, August 4, 2008.
- 2008 *Distinguished Speaker Seminar*, Harvard University School of Engineering and Applied Science, Cambridge, Massachusetts, May 2, 2008.
- 2007 *Distinguished Plenary Speaker, HABTEKUS 07 (inaugural) Telecommunication Technologies and Applications Symposium*, Yildiz Technical University, Istanbul, Turkey, November 22, 2007.
- 2007 *IEEE Communications Society Distinguished Lecturer*, Aristotle University of Thessaloniki, Thessaloniki, Greece, November 21, 2007.

- 2007 *IEEE Communications Society Distinguished Lecturer*, University of Zagreb, Zagreb, Croatia, November 19, 2007.
- 2007 *Distinguished Speaker Seminar*, University of Calgary, Electrical and Computer Engineering Department, Calgary Alberta, Canada, February 9, 2007.
- 2006 *Distinguished Speaker Seminar*, NTT DoCoMo Communications Laboratories USA, Inc. Network Lab (NWL), Palo Alto, CA, December 1, 2006.
- 2006 *Distinguished Speaker Seminar*, University of Manitoba, Electrical and Computer Engineering Department, October 17, 2006.
- 2002 *SIU Signal Processing and Communications Conference (SIU 2002)*, Pamukkale, Denizli, Turkey, June 13, 2002.
- 2002 *iCORE Distinguished Lecturer Series*, Calgary, Alberta, Canada, January 16, 2002.

CONSULTING

- 2006-2009 Lead Consultant on Contract to WEBSKY, INC., Plant City, Florida
- 2000 Consultant on Contract to CANACCORD CAPITAL CORPORATION, Edmonton, Alberta
- 1991 and 1990 Consultant on Contract to COMMUNICATIONS RESEARCH CENTRE, Ottawa, Ontario.
- 1989 Consultant on Contract to SPAR AEROSPACE LIMITED, Ste-Anne-de Bellevue, Quebec.
- 1986 and 1985 Consultant on Contract to DATAWAVE COMMUNICATIONS INC., Victoria, British Columbia.

STUDENT AWARDS

- 1985 Science Council of British Columbia G.R.E.A.T. Award
- 1984 British Columbia Telephone Company Graduate Scholarship
- 1984 Teleglobe Canada Graduate Fellowship (declined)
- 1983 and renewal 1984 MDI Mobile Data International Fellowship in Communications Engineering
- 1983 and renewal 1984 Natural Sciences and Engineering Research Council Postgraduate Scholarship
- 1981 and renewal 1982 Natural Sciences and Engineering Research Council Postgraduate Scholarship
- 1980 Special University Prize in Applied Science (outstanding student in the graduating class)
- 1980 Natural Sciences and Engineering Research Council Summer Scholarship (declined)
- 1979 Placer Development Limited Scholarship

REFEREED JOURNAL PUBLICATIONS

- [1] N. Suraweera and N.C. Beaulieu, "Outage Probability of Decode-and-Forward Relaying With Optimum Combining in the Presence of Co-Channel Interference and Nakagami Fading," to appear in *IEEE Wireless Communications Letters*.
- [2] K. T. Hemachandra and N. C. Beaulieu, "A Moment Matching Technique to Estimate the Achievable Ergodic Rate for Limited Feedback Distributed Antenna Systems in the Presence of Out-of-Cell Interference," to appear in *IEEE Communications Letters*.
- [3] Q. Guo and N.C. Beaulieu, "An Approximate ML Estimator for the Location Parameter of the Generalized Gaussian Distribution With $p = 5$," to appear in *IEEE Signal Processing Letters*.
- [4] N.C. Beaulieu, "A Novel Generalized Framework for Performance Analysis of Selection Combining Diversity," to appear as a full paper in *IEEE Transactions on Communications*.
- [5] S. Liu, X. Song, J. Cheng and N.C. Beaulieu, "Asymptotic Analysis of Multi-Branch EGC and SC Over Equally Correlated Rician Channels," *Wireless Communications and Mobile Computing*, published online, May 2013.
- [6] S. Wang, Y. Chen, M. Leeson and N.C. Beaulieu, "Channel Capacity and Bit Error Rate Optimization of the Ultra-Wide Bandwidth Transmitted-Reference Receiver," *Wireless Communications and Mobile Computing*, published online November 2011.
- [7] Y. Chen and N.C. Beaulieu, "MAP Estimation of the Rician K Factor," accepted pending revisions for publication in the *Canadian Journal of Electrical and Computer Engineering*.
- [8] E. Davis and N.C. Beaulieu, "Asymptotic Results in PSK Modulation Classification," to appear as a full paper in *IEEE Transactions on Communications*.
- [9] K.E. Baddour and N.C. Beaulieu, "Nonparametric Doppler Spread Estimation for Narrowband Wireless Channels," accepted pending revisions for publication in *IEEE Transactions on Vehicular Technology*.
- [10] W.W. Choy, N.C. Beaulieu and M.O. Damen, "A New Technique for Estimating the Error Probability of Decision Feedback Equalization," accepted pending revisions for publication as a full paper in *European Transactions on Telecommunications*. M. Karami, A. Olfat and N. C. Beaulieu, "Pilot Symbol Parameter Optimization Based on Imperfect Channel State Prediction for OFDM Systems," *IEEE Transactions on Communications*, vol. 61, pp. 2557-2567, June 2013.
- [11] M. Karami, A. Olfat and N. C. Beaulieu, "Pilot Symbol Parameter Optimization Based on Imperfect Channel State Prediction for OFDM Systems," *IEEE Transactions on Communications*, vol. 61, pp. 2557-2567, June 2013.
- [12] N.C. Beaulieu, G. Bartoli, D. Marabissi and R. Fantacci, "The Structure and Performance of the Optimum Continuous-Time Detector for Laplace Noise," *IEEE Communications Letters*, vol. 17, pp. 1065-1068, June 2013.
- [13] A. Behnad, A. M. Rabiei, N. C. Beaulieu, and H. Hajizadeh, "Generalized Analysis of Dual-Hop DF Opportunistic Relaying With Randomly Distributed Relays," *IEEE Communications Letters*, vol. 17, pp. 1057-1060, June 2013.
- [14] K. T. Hemachandra and N. C. Beaulieu, "Outage Analysis of Opportunistic Scheduling in Dual-Hop Multiuser Relay Networks in the Presence of Interference," *IEEE Transactions on Communications*, vol. 61, pp. 1786-1796, May 2013.

- [15] S. Niranjayan and N.C. Beaulieu, "Novel Adaptive Nonlinear Receivers for UWB Multiple Access Communications," *IEEE Transactions on Wireless Communications*, vol. 12, pp. 2014-2023, May 2013.
- [16] N.C. Beaulieu, "Generalization of Craig's Second Formula," *IEEE Communications Letters*, vol. 17, pp. 433-434, March 2013.
- [17] A. Behnad, A. M. Rabiei, and N. C. Beaulieu, "Performance Analysis of Opportunistic Relaying in a Poisson Field of Amplify-and-Forward Relays," *IEEE Transactions on Communications*, vol. 61, pp. 97-107, Jan. 2013
- [18] N.C. Beaulieu and Q. Guo, "True ML Estimator for the Generalized Gaussian Distribution With $p = 4$," *IEEE Communications Letters*, vol. 17, pp. 155-157, January 2013.
- [19] N.C. Beaulieu and C. Jiang, "A New Solution for the SEP of MPSK," *IEEE Communications Letters*, vol. 17, pp. 12-14, January 2013.
- [20] N.C. Beaulieu, "Special Values of the Bivariate Gaussian Distribution," *IEEE Signal Processing Letters*, vol. 20, pp. 99-101, January 2013.
- [21] N.C. Beaulieu and Q. Guo, "Novel Estimator for the Location Parameter of the Generalized Gaussian Distribution," *IEEE Communications Letters*, vol. 16, pp. 2064-2067, December 2012.
- [22] P. Paysarvi-Hoseini and N.C. Beaulieu, "On the Benefits of Multichannel/Wideband Spectrum Sensing With Non-Uniform Channel Sensing Durations for Cognitive Radio Networks," *IEEE Transactions on Communications*, vol. 60, pp. 2434-2443, September 2012.
- [23] S.S. Solimon and N.C. Beaulieu, "Exact Analysis of Dual-Hop AF Maximum End-to-End SNR Relay Selection," *IEEE Transactions on Communications*, vol. 60, pp. 2135-2145, August 2012.
- [24] N.C. Beaulieu and S.S. Soliman, "Exact Analysis of Multihop Amplify-and-Forward Relaying Systems Over General Fading Links," *IEEE Transactions on Communications*, vol. 60, pp. 2123-2134, August 2012.
- [25] M.F. Hanif, N.C. Beaulieu and D.J. Young, "Two Useful Bounds Related to Weighted Sums of Rayleigh Random Variables With Applications to Interference Systems," *IEEE Transactions on Communications*, vol. 60, pp. 1788-1792, July 2012.
- [26] H. Shao and N.C. Beaulieu, "Linear Block Coding in Laplacian Noise," *IEEE Transactions on Wireless Communications*, vol. 11, pp. 2362-2372, July 2012.
- [27] A. Behnad, N.C. Beaulieu and B. Maham, "Multi-Hop Amplify-and-Forward Relaying on Nakagami-0.5 Fading Channels," *IEEE Wireless Communications Letters*, vol. 1, pp. 173-176, June 2012.
- [28] A. Behnad, N. C. Beaulieu, and K. Hemachandra, "Correction to 'Novel Representations for the Bivariate Rician Distribution'" *IEEE Transactions on Communications*, vol. 60, p. 1486, June 2012.
- [29] C. Xiao and N.C. Beaulieu, "Node Switching Rates of Opportunistic Relaying and Switch-and-Examine Relaying in Rician and Nakagami- m Fading," *IEEE Transactions on Communications*, vol. 60, pp. 488-498, February 2012.
- [30] N.C. Beaulieu, "An Extended Limit Theorem for Correlated Lognormal Sums," *IEEE Transactions on Communications*, vol. 60, pp. 23-26, January 2012.
- [31] Y. Chen and N.C. Beaulieu, "Novel Partial Decision Combining Schemes for Rayleigh Fading," *European Transactions on Telecommunications*, vol. 23, pp. 67-75, January 2012.
- [32] K. T. Hemachandra and N.C. Beaulieu, "Novel Simple Representation for Gaussian Class Multivariate Distributions With Generalized Correlation," *IEEE Transactions on Information Theory*, vol. 57, pp. 8072-8083, December 2011.

- [33] A. Emad and N.C. Beaulieu, "On the Performance of an Automatic Frequency Control Loop in Dissimilar Fading Channels in the Presence of Interference," *IEEE Transactions on Communications*, vol. 59, pp. 3234-3239, December 2011.
- [34] N.C. Beaulieu, G. Farhadi and Y. Chen, "A Precise Approximation for Performance Evaluation of Amplify-and-Forward Multi-Hop Relaying Systems," *IEEE Transactions on Wireless Communications*, vol. 10, pp. 3985-3989, December 2011.
- [35] Y.G. Kim and N.C. Beaulieu, "On the Decoding of Matrix C in the WiMAX Standard," *IEEE Transactions on Wireless Communications*, vol. 10, pp. 3560-3564, November 2011.
- [36] N.C. Beaulieu and K.T. Hemachandra, "Novel Representations for the Bivariate Rician Distribution," *IEEE Transactions on Communications*, vol. 59, pp. 2951-2954, November 2011.
- [37] N. C. Beaulieu and A.M. Rabiei, "Linear Diversity Combining on Nakagami-0.5 Fading Channels," *IEEE Transactions on Communications*, vol. 59, pp. 2742-2752, October 2011.
- [38] K.T. Hemachandra and N.C. Beaulieu, "New Representations for the Gaussian Class Multivariate Weibull Distribution With Constant Correlation and Applications," *IEEE Transactions on Communication*, vol. 59, pp. 2648-2653, October 2011.
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- [1] Multiband Spectrum Sensing for Cognitive Radio. (Ph.D.)
- [2] Pilot Symbol Assisted Adaptive Modulation OFDM. (Ph.D.)
- [3] Low Power Decoders for WiMAX Space-Time Codes. (Ph.D.)
- [4] Cellular Base Station Coordination for Increased User Capacity. (Ph.D.)
- [5] Power Allocation and Routing in Cooperative Mobile Wireless Networks. (M.Sc.)
- [6] Interference Sensing and Cancellation in UWB Receiver Designs. (Ph.D.)
- [7] Sequence Design for Interference Mitigation in Multi-User UWB Environments. (Ph.D.)
- [8] Novel Theoretical Models for Cooperative Wireless Networks. (Ph.D.)
- [9] Applications of Level Crossing Information in Cooperative Wireless Network Routing. (M.Sc.)
- [10] Optimum Combining: Considerations and Impact for MIMO Systems. (Ph.D.)
- [11] Statistical Models and Superior Receiver Design for Multiuser UWB Applications. (Ph.D.)
- [12] Node Switching Rates and Selection Strategies for Cooperative Wireless Networks. (M.Sc.)
- [13] Digital Receiver Designs for Impulsive Noise Environments. (M.Sc.)

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