

Michael L. Honig
Curriculum Vitae, September 2009

Academic Title: Professor
Department of Electrical Engineering & Computer Science
Northwestern University
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Education

Ph.D. in Electrical Engineering
University of California, Berkeley, May 1981

M.S. in Electrical Engineering
University of California, Berkeley, May 1978

B.S. with Honors in Electrical Engineering
Stanford University, May 1977

Professional Experience

Since 10/94	Professor Department of Electrical & Computer Engineering Northwestern University, Evanston, IL Teaching and research in communications, networks, and signal processing.
Summers 2007/8	Visiting Humboldt Scholar School of Electrician Engineering and Information Technology Technical University of Munich
Fall 2004	Visiting Fellow Department of Electrical Engineering Princeton University
Fall 2000	Visiting Scholar Department of Electrical Engineering & Computer Science University of California, Berkeley

Professional Experience (cont.):

8/99, 8/01 **Visiting Scholar**
 Sydney University (also 9/97) and Southen Poro Communications
 Sydney, Australia

6-9/96 **Summer Faculty**
 NRaD (Naval Research and Development facility)
 San Diego, Ca.

6-9/96 **Visiting Scholar**
 University of California, San Diego
 (Joint appointment with NRaD)

11/83-10/94 **Member of Technical Staff**
 Computing and Communications Research Department
 Bellcore, Morristown, New Jersey
 Applied research on wireless communications,
 digital subscriber loops, signal processing, and networks.

7/81-11/83 **Member of Technical Staff**
 Data Theory Group, Bell Laboratories
 Holmdel, New Jersey
 Applied research on echo cancellation and coded modulation
 for voiceband modems, and wideband local area networks.

Consulting

5/07-8/08 *Agere vs. Sony*: Expert witness for Sony.
 The case was concerned with a CDMA patent for 802.11b.
 I was deposed twice; the case settled before trial.

4/06-4/07 *Broadcom vs. Qualcomm*: Expert witness for Broadcom.
 The case was concerned with patents for UMTS (CDMA) receivers.
 I was deposed; the case settled before trial.

6/02-10/03 *In-Flight vs. AT&T*: Expert witness for AT&T.
 The case was concerned with an air-to-ground communication system.
 I was deposed and testified at trial.

Various activities in the area of wireless communications and signal processing
 for Motorola, SAIC, University of Chicago, and Ameritech.

Honors and Awards

Humboldt Research Award for Senior U.S. Scientists
(Alexander von Humboldt Foundation)

Visiting Wei Lun professor, Chinese University of Hong Kong (2008)

Included in ISI list of highly cited researchers.

2002 IEEE Communications Society and Information Theory Society
Joint Paper Award (with W. Xiao)

Fellow of IEEE, 1997

Elected to IEEE Information Theory Society Board of Governors, 1996-2002

Ameritech Professor of Information Technology
Department of Electrical & Computer Engineering
Northwestern University, 9/1/94-8/31/97

Regents Fellowship
University of California, Berkeley, 1977

F.E. Terman Award for Academic Excellence, 1976

Research Interests

Wireless and multiuser communications/networks

Signal processing, adaptive filtering

Data communications networks;
Modeling, performance analysis, and simulation of networks
and distributed systems

Courses Taught

At Northwestern:

Wireless Communications (EECS 380), Analog Communications (EECS 307),
Digital Communications (EECS 478), Information Theory (EECS 428),
Adaptive Filters (EECS 463), Wireless Technologies (for MSIT program),
Engineering Analysis (Gen_Eng 205-1)

Courses Taught (cont.):

Topics in Digital Communications

Technical University of Munich, Summer 2007

Wireless Communications (EECS 290S)

University of California, Berkeley, Fall 2000

Signal Analysis and Communications Systems (EE 485)

Visiting Lecturer (Professor), Princeton University, Fall 1993

Advances in Coding and Equalization for Bandlimited Channels

Short course given at the Universidad Polytechnica de Madrid, Jan. 1991

Selected Topics in Adaptive Filtering and Data Communications

Short course given at Tsing Hua University, Beijing, China, July 1988

Professional Activities

Guest Editor,

Journal of Selected Areas in Signal Processing

Special issue on "Performance Limits of Ultra-Wideband Systems", October 2007.

Editor, *Foundations and Trends in Communications and Information Theory*

(starting 2003)

Editor for Communications

IEEE Transactions on Information Theory, 9/97-10/00

Editor for Communication Theory

IEEE Transactions on Communications, 10/90-10/95

Digital Signal Processing Technical Committee

IEEE Signal Processing Society

Member, 1993-1996

Guest Editor

European Transactions on Telecommunications

Focus on "Signal Processing for DS-CDMA", Sept/Oct 1998

Guest Editor

Wireless Personal Communications: An International Journal

Special issue: *Interference in Mobile Wireless Systems*, Nov 1997.

Professional Activities (cont.):

Guest Editor

European Transactions on Telecommunications

Focus on "Economics of Telecommunications", July-August 1995

Program Committee Member

2010 International Conference on Communications

2009 Information Theory Workshop

2009 International Symposium on Modeling and Optimization in
Mobile, Ad-hoc and Wireless Networks (WiOpt)

2008 International Symposium on Information Theory

2008 International Symposium on Modeling and Optimization in
Mobile, Ad-hoc and Wireless Networks (WiOpt)

2007 Workshop on Resource Allocation in Wireless NETWORKS (RAWNET)

2006 International Symposium on Information Theory

2006 International Symposium on Modeling and Optimization in
Mobile, Ad-hoc and Wireless Networks (WiOpt)

2006 International Conference on Communications

2005 Signal Processing Advances for Wireless Communications

2004 International Symposium on Information Theory

2003 Baiona Workshop on Signal Processing in Communications

2000 International Symposium on Information Theory

2000 Conference on Communications and Information Sciences and Systems

2000 IEEE Singapore International Conference on Communication Systems

1999 Vehicular Technology Conference

1998 International Symposium on Information Theory

Professional Activities (cont.):

Session chair:

2008 International Conference on Communications

2008 Communication Theory Workshop

2008 Information Theory and Applications Workshop (University of California, San Diego)

2007 Cognitive Radio Oriented Wireless Networks and Communications (CrownCom)

2007 International Symposium on Information Theory

2006 International Symposium on Information Theory

2006 International Conference on Communications

2005 Globecom Conference

2005 International Symposium on Information Theory

2004 International Symposium on Information Theory

2004 Conference on Communications and Information Sciences and Systems

2000 International Symposium on Information Theory

2000 Conference on Communications and Information Sciences and Systems

1999 Communication Theory Workshop

1998 IEEE International Symposium on Information Theory

1997 IEEE International Symposium on Information Theory

1997 Allerton Conference on Communications, Control, and Computing

1996 IEEE Vehicular Technology Conference

1995 IEEE Vehicular Technology Conference

1993 IEEE International Conference on Acoustics, Speech, and Signal Processing

1993 Princeton Conference on Communications and Control

Additional Professional Activities:

Member, IEEE Fellow Committee for the Information Theory Society (2008-11)

Member, IEEE Information Theory Society awards committee (2008)

Member, National Research Council committee

R&D strategies to improve surface transportation security

National Science Foundation panel member

Various panels related to signal processing and communications

Funded Research Projects

1. *National Science Foundation*, NeTS program, "Spectrum Markets for Wireless Services", (35% with R. Berry and R. Vohra), 8/1/09-7/31/13.
2. *Army Research Office*, "Dynamic Spectrum Sharing with Limited Network State Information", (50% with R. Berry), 7/1/06-6/30/10.
3. *Motorola-Northwestern Center for Telecommunications*, "Scheduling and Resource Allocation for MIMO OFDM Networks", (50% with R. Berry), 9/1/06-8/31/10.
4. *National Science Foundation*, NeTS program, "Smart Markets for Smart Radios", (35% with R. Berry and R. Vohra), 9/1/05-8/31/10.
5. *National Science Foundation and Army Research Office*, "Adaptive Transceivers for Wireless Networks", 9/1/03-8/31/07.
6. *Motorola-Northwestern Center for Telecommunications*, "Dynamic Spectrum Sharing with Cognitive Radios", 9/1/04-8/31/07.
7. *Mayflower Communications (SBIR)*, "Multistage Antenna Array based Adaptive Signal Processing for Wideband Systems", 12/1/06-6/1/07.
8. *Motorola-Northwestern Center for Telecommunications*, "Design and Performance of Ad Hoc Cooperative Wireless Networks", (50% with R. Berry), 9/1/03-8/31/06.
9. *Motorola University in Partners Research Grant*, "Advanced Receivers for Mobile Cellular Systems", 9/1/04-8/31/07.
10. *Motorola*, "Link Layer Adaptation for Wireless Packet Data Systems", 9/1/01-8/31/04.
11. *National Science Foundation*, "Adaptive Reduced-Rank Interference Suppression: Algorithms, Performance, and Low-Power VLSI" (50% with M. Sarrafzadeh), 9/1/00-8/31/04.
12. *National Science Foundation*, "Dynamic Resource Allocation for Code-Division Multiple Access", (60% with S. Jordan), 10/1/99-9/30/03.
13. *Motorola*, "Multi-cell Dynamic Resource Allocation" (60% with Randy Berry), 9/1/01-8/31/03.
14. *Army Research Office*, "Adaptive Signal Processing Techniques for Spread Spectrum Multiple Access", 8/1/99-7/31/02.
15. *National Science Foundation*, "Multiuser Pulse Optimization for Mobile Cellular Communications with Coordinating Base Stations", 9/1/96-8/30/99.
16. *Army Research Office*, "Linear Interference Suppression for Direct-Sequence Code-Division Multiple-Access", 8/15/96-8/14/99.

17. *Motorola*, "Adaptive Spatial Interference Suppression", 9/1/96-8/30/99.
18. *European Space Agency*, "Applicability of Adaptive Interference Mitigation Techniques to Satellite CDMA Radio Networks", 11/15/97-11/14/98.
19. *Center for Research on Applied Signal Processing*, "Blind Space-Time Multiuser Detection", 9/1/98-8/30/99.
20. *Ameritech Cellular*, "Modeling of the Cellular Digital Packet Data Protocol", 1/1/96-5/15/96.

Patents

1. M. L. Honig and V. Tripathi, "Adaptive Turbo Decision Feedback Equalization", Patent Number 7,088,770, August 8, 2006.
2. M. L. Honig, "Reduced-Rank Adaptive Filtering", Patent Number 6,956,897, Oct. 18, 2005.
3. V. Tripathi, R. Peterson, E. Visotsky, and M. L. Honig, "Reliability-Based Type-II Hybrid ARQ Scheme", Patent Number 6,671,849, Dec. 30, 2003.
4. M. L. Honig and U. Madhow, "Hybrid Intra-Cell TDMA/Inter-Cell CDMA for Wireless Networks", Patent Number 5,481,533, Jan. 2, 1996.
5. M. L. Honig and U. Madhow, "Interference Suppression Schemes for Spread Spectrum Code Division Multiple Access", Patent Number 5,343,496, Aug. 30, 1994.
6. P. Crespo and M. L. Honig, "Rapidly Converging Adaptive IIR Algorithms for an Adaptive Pole-Zero Decision Feedback Equalizer", Patent Number 5,293,402, March 8, 1994.
- 7-10. P. Crespo, M. L. Honig, and J. A. Salehi, "A Code Division Multiple Access Technique with Arbitrary Spectral Shaping". Four patents have been issued with this title: Patent Numbers 5,173,923 (December 22, 1992), 5,175,743 (December 29, 1992), 5,175,744 (December 29, 1992), and 5,177,768 (January 5, 1993).
11. P. Crespo and M. L. Honig, "Wideband Digital Equalizers for Subscriber Loops", Patent Number 5,031,194, July 9, 1991.

Publications, M. Honig

Books and Book Chapters

1. M. L. Honig (Ed.), "Advances in Multiuser Detection", J. Wiley & Sons, Inc., Hoboken, NJ, August 2009.
2. M. L. Honig, "Overview of Multiuser Detection", Chapter 1 in [1].
3. M. Peacock, I. Collings, and M. L. Honig, "Performance with Random Signatures", Chapter 4 in [1].
4. M. L. Honig and H. V. Poor, "Adaptive Interference Mitigation", in *Wireless Communications: A Signal Processing Perspective*, H. V. Poor and G. Wornell, Eds., Prentice-Hall, Chapter 2, pp. 64-128, Englewood Cliffs, NJ, 1998.
5. M. L. Honig and M. Barton, "Baseband Signaling and Pulse Shaping", *The Mobile Communications Handbook*, Jerry Gibson, Ed., CRC Press, pp. 4-1 to 4-23, 1999.
6. K. Steiglitz, M. L. Honig, and L. Cohen, "A Computational Market Model Based on Individual Action", in *Market-Based Control: A Paradigm for Distributed Resource Allocation*, S. Clearwater, Ed., World Scientific, Hong Kong, pp. 1-27, 1996.
7. D. J. Hajela and M. L. Honig, "On Finding Maximally Separated Signals for Digital Communications", in *Open Problems in Communication and Computation*, T. Cover and B. Gopinath Eds., Springer-Verlag, New York, pp. 92-99, 1987.
8. M. L. Honig and D. G. Messerschmitt, *Adaptive Filters: Structures, Algorithms, and Applications*, Kluwer Academic Publishers, 1985.

Journal Publications

1. D. Schmidt, C. Shi, R. A. Berry, M. L. Honig, and W. Utschick, "Pricing Algorithms for Power Control and Beamformer Design in Interference Networks", *IEEE Signal Processing Magazine*, Vol. 26, No. 5, pp. 53-63, September 2009.
2. M. Riemensberger, Y. Sagduyu, M. L. Honig, and W. Utschick, "Training Overhead for Decoding Random Linear Network Codes in Wireless Networks", *IEEE Journal on Selected Areas in Communications*, Vol. 27, No. 5, pp. 729-737, June 2009.
3. W. Santipach and M. L. Honig, "Capacity of a Multi-Antenna Fading Channel with a Quantized Precoding Matrix", *IEEE Transactions on Information Theory*, Vol. 55, No. 3, pp. 1218-1234, March 2009.

4. J. Chen, R. Berry, and M. Honig, "Limited Feedback Schemes for Downlink OFDMA Based on Sub-Channel Groups", *IEEE Journal on Selected Areas in Communications*, Vol. 26, No. 8, pp. 1451-1461, Oct. 2008.
5. D. J. Ryan, I. V. L. Clarkson, I. B. Collings, D. Guo, and M. L. Honig, "QAM and PSK Codebooks for Limited Feedback MIMO Beamforming", *IEEE Transactions on Communications*, Vol. 57, No. 4, pp. 1184-1196, Feb. 2009.
6. J. Bae, E. Beigman, R. A. Berry, M. L. Honig, and R. Vohra, "Sequential Bandwidth and Power Auctions for Distributed Spectrum Sharing", *IEEE Journal on Selected Areas in Communications*, Vol. 26, No. 7, pp. 1193-1203, September 2008.
7. Y. Sun and M. L. Honig, "Asymptotic Capacity of Multi-Carrier Transmission with Frequency-Selective Fading and Limited Feedback", *IEEE Transactions on Information Theory*, Vol. 54, No. 7, pp. 2879-2902, July 2008.
8. M. Peacock, I. B. Collings, and M. L. Honig, "Eigenvalue Distributions of Sums and Products of Large Random Matrices via Incremental Expansions", *IEEE Transactions on Information Theory*, Vol. 54, No. 5, pp. 2123-2138, May 2008.
9. K. Zachariades, M. L. Honig, and A. K. Katsaggelos, "Source Fidelity over Fading Channels: Performance of Erasure and Scalable Codes", *IEEE Transactions on Communications*, Vol. 56, No. 7, pp. 1080-1091, July 2008.
10. P. Liu, R. A. Berry, M. L. Honig, and S. Jordan, "Packet-Based Power Allocation for Forward Link Data Traffic", *IEEE Transactions on Wireless Communications*, Vol. 6, No. 8, pp. 2894-2903, August 2007.
11. Y. Sun and M. L. Honig, "Performance of Reduced-Rank Equalization", *IEEE Transactions on Information Theory*, Vol. 52, No. 10, pp. 4548-4562, October 2006.
12. M. Peacock, I. Collings, and M. L. Honig, "Unified Large System Analysis of MMSE and Adaptive Least Squares Receivers for a class of Random Matrix Channels", *IEEE Transactions on Information Theory*, Vol. 52, No. 8, pp. 3567-3600, August 2006.
13. Y. Sun and M. L. Honig, "Reduced-Rank Signature-Receiver Adaptation", *IEEE Transactions on Wireless Communications*, Vol. 5, No. 10, pp. 2896-2902, October 2006.
14. P. Liu, R. A. Berry, and M. L. Honig, "A Fluid Analysis of a Utility-Based Wireless Scheduling Policy", *IEEE Transactions on Information Theory*, Vol. 52, No. 7, pp. 2872-2889, July 2006.
15. J. Huang, R. Berry, and M. L. Honig, "Distributed Interference Compensation for Wireless Networks", *IEEE Journal on Selected Areas in Communications*, Vol. 24, No. 5, pp. 1074-1084, May 2006.
16. M. Peacock, I. Collings, and M. L. Honig, "Asymptotic Spectral Efficiency of Multi-user Multi-Signature CDMA in Frequency-Selective Channels", *IEEE Transactions on Information Theory*, Vol. 52, No. 3, pp. 1113-1129, March 2006.

17. W. Santipach and M. L. Honig, "Signature Optimization for CDMA with Limited Feedback", *IEEE Transactions on Information Theory*, Vol. 51, No. 10, pp. 3475-3492, October 2005.
18. W. Xiao and M. L. Honig, "Large System Transient Behavior of Adaptive Least Squares Algorithms", *IEEE Transactions on Information Theory*, Vol. 51, No. 7, pp. 2447-2474, July 2005.
19. E. Visotsky, Y. Sun, V. Tripathi, M. L. Honig, and R. Peterson, "Reliability-Based Incremental Redundancy with Convolutional Codes", *IEEE Transactions on Communications*, Vol. 53, No. 6, pp. 987-997, June 2005.
20. J. Huang, R. Berry, and M. L. Honig, "Wireless Scheduling with Hybrid ARQ", *IEEE Transactions on Wireless Communications*, Vol. 4, No. 6, pp. 2801--2810, Nov. 2005.
21. C. Zhou, M. L. Honig, and S. Jordan, "Utility-Based Power Control for a Two-Cell CDMA Data Network", *IEEE Transactions on Wireless Communications*, Vol. 4, No. 6, pp. 2764--2776, Nov. 2005.
22. J. Huang, R. Berry, and M. L. Honig, "Auction-Based Spectrum Sharing", *Mobile Networks and Applications*, Vol. 11, pp. 405-418, Springer-Verlag, 2006.
23. Y. Sun, V. Tripathi, and M. L. Honig, "Adaptive, Iterative, Reduced-Rank (Turbo) Equalization", *IEEE Transactions on Wireless Communications*, Vol. 4, No. 6, pp. 2789--2800, Nov. 2005.
24. C. Zhou, P. Zhang, M. L. Honig, and S. Jordan, "Two-Cell Power Allocation for Downlink CDMA", *IEEE Transactions on Wireless Communications*, Vol. 3, No. 6, November 2004.
25. D. Love, R. Heath, W. Santipach, and M. L. Honig, "What is the Value of Limited Feedback for MIMO Channels?", *IEEE Communications Magazine*, Vol. 42, No. 10, pp. 54--59, October 2004.
26. M. Peacock, I. Collings, and M. L. Honig, "Asymptotic Analysis of LMMSE Multiuser Receivers for Multi-Code Multi-Carrier CDMA in Rayleigh Fading", *IEEE Transactions on Communications*, Vol. 52, No. 6, pp. 964 - 972, June 2004.
27. M. L. Honig, G. Woodward, and Y. Sun, "Adaptive Iterative Multiuser Decision Feedback Detection", *IEEE Transactions on Wireless Communications*, Vol. 3, No. 2, pp. 477-485, June 2004.
28. P. Liu, P. Zhang, S. Jordan, and M. L. Honig, "Single-cell Forward Link Power Allocation Using Pricing in Wireless Networks", *IEEE Transactions on Wireless Communications*, Vol. 3, No. 2, pp. 533-543, March 2004.
29. M. L. Honig and R. Ratasuk, "Large-System Performance of Iterative Multiuser Decision-Feedback Detection", *IEEE Trans. on Commun.*, vol. 51, No. 8, pp. , August 2003.

30. M. L. Honig and W. Xiao, "Performance of Reduced-Rank Interference Suppression: Reflections and Open Problems", *IEEE Information Theory Society Newsletter*, Vol. 53, No. 2, pp. 7-9, June 2003.
31. G. Woodward, R. Ratasuk, M. L. Honig, and P. Rapajic, "Minimum Mean Squared Error Multiuser Decision Feedback Detectors for DS-CDMA", *IEEE Trans. on Commun.*, vol. 50, pp. 2104-2112, Dec. 2002.
32. W. Xiao and M. L. Honig, "Forward-Link Performance of Satellite CDMA with Linear Interference Suppression and One-step Power Control", *IEEE Trans. on Wireless Commun.*, Vol. 1, No. 4, pp. 600-610, Oct. 2002.
33. M. L. Honig and J. S. Goldstein, "Adaptive Reduced-Rank Interference Suppression Based on the Multi-Stage Wiener Filter", *IEEE Trans. on Commun.*, Vol. 50, No. 6, pp. 986-994, June 2002.
34. W. Phoel and M. L. Honig, "Performance of Coded DS-CDMA with Pilot-Assisted Channel Estimation and Linear Interference Suppression", *IEEE Trans. on Commun.*, Vol. 50, No. 5, pp. 822-832, May 2002.
35. G. Rajappan and M. L. Honig, "Signature Sequence Adaptation for DS-CDMA with Multipath", *IEEE Journal on Selected Areas in Commun.*, Vol. 20, No. 2, pp. 384-395, Feb. 2002.
36. M. L. Honig and W. Xiao, "Performance of Reduced-Rank Linear Interference Suppression", *IEEE Transactions on Information Theory*, Vol. 47, No. 5, pp. 1928-1946, July 2001.
37. M. L. Honig, S. L. Miller, M. J. Shensa, and L. B. Milstein, "Performance of Adaptive Linear Interference Suppression for DS-CDMA in the Presence of Dynamic Fading", *IEEE Trans. on Comm.*, Vol. 49, No. 4, pp. 635-645, April 2001.
38. S. L. Miller, M. L. Honig, and L. B. Milstein, "Performance Analysis of MMSE Receivers for DS-CDMA in Frequency-Selective Fading Channels", *IEEE Trans. on Comm.*, Vol. 48, No. 11, pp. 1919-1929, Nov. 2000.
39. M. L. Honig and M. K. Tsatsanis, "Adaptive Techniques for Multiuser CDMA Receivers", *IEEE Signal Processing Magazine*, Vol. 17, No. 9, pp. 49-61, May 2000.
40. J-B Kim and M. L. Honig, "Resource Allocation for Multiple Classes of DS-CDMA Traffic", *IEEE Trans. on Vehicular Technology*, Vol. 49, No. 2, pp. 506-519, March 2000.
41. U. Madhow and M. L. Honig, "Performance of MMSE Interference Suppression with Random Signature Sequences", *IEEE Trans. on Information Theory*, Vol. 45, No. 6, pp. 2039-2045, Sept. 1999.
42. M. L. Honig, "Adaptive Linear Interference Suppression for Packet DS-CDMA", *European Transactions on Telecommunications*, Vol. 9(2), pp. 173-182, March-April 1998.

43. M. Barton and M. Honig, "Optimization of Discrete Multitone to Maintain Spectrum Compatibility with Other Transmission Systems on Twisted Copper Pairs", *IEEE Journal on Selected Areas in Communications*, Vol. 13, No. 9, pp. 1558-1563, Dec. 1995.
44. U. Madhow, M. L. Honig, and K. Steiglitz, "Optimization of Wireless Resources for Personal Communications Mobility Tracking", *IEEE/ACM Transactions on Networking*, Vol. 3, No. 6, pp. 698-707, Dec. 1995
45. M. L. Honig, U. Madhow, and S. Verdú, "Blind Adaptive Multiuser Detection", *IEEE Transactions on Information Theory*, Vol. 41, No. 4, pp. 944-960, July 1995.
46. P. Crespo, M. L. Honig, and J. A. Salehi, "Spread-Time Code Division Multiple Access", *IEEE Transactions on Communications*, Vol. 43, No. 6, June 1995, pp. 2139-2148.
47. M. L. Honig, K. Steiglitz, V. Balakrishnan, and E. Rantapaa, "Discrete-Time Signal Design for Maximum Amplitude Separation", *IEEE Transactions on Information Theory*, Vol. 41, No. 1, pp. 164-170, Jan. 1995.
48. U. Madhow and M. L. Honig, "MMSE Interference Suppression for Direct-Sequence Spread Spectrum CDMA", *IEEE Transactions on Communications*, Vol. 42, No. 12, pp. 3178-3188, Dec. 1994.
49. V. Anantharam, M. L. Honig, U. Madhow, and V. Wei, "Optimization of a Database Hierarchy for Mobility Tracking in a Personal Communications Network", *Performance Evaluation: An International Journal*, Vol. 20, pp. 287-300, 1994.
50. M. L. Honig, "Channel Shaping to Maximize Minimum Distance", *IEEE Transactions on Information Theory*, Vol. 39, No. 6, pp. 1957-1961, Nov. 1993.
51. M. L. Honig, P. Crespo, and K. Steiglitz, "Suppression of Near- and Far-End Crosstalk by Linear Pre- and Post-Filtering", *IEEE Journal on Selected Areas in Communications*, Vol. 10, No. 3, pp. 614-629, June 1992.
52. M. L. Honig and K. Steiglitz, "Maximizing the Output Energy of a Linear System with a Time- and Amplitude-Limited Input", *IEEE Transactions on Information Theory*, Vol. 38, No. 3, pp. 1041-1052, May 1992.
53. M. L. Honig, K. Steiglitz, and S. Norman, "Optimization of Signal Sets for Partial Response Channels — Part I: Numerical Techniques", *IEEE Transactions on Information Theory*, Vol. 37, No. 5, pp. 1327-1341, Sept. 1991.
54. M. L. Honig, "Optimization of Signal Sets for Partial Response Channels — Part II: Asymptotic Coding Gain", *IEEE Transactions on Information Theory*, Vol. 37, No. 5, pp. 1342-1354, Sept. 1991.
55. P. Crespo and M. L. Honig, "Pole-Zero Decision Feedback Equalization with a Rapidly Converging Adaptive IIR Algorithm", *IEEE Journal on Selected Areas in Communications*, Vol. 9, No. 6, pp. 817-829, August 1991.

56. M. L. Honig, S. Boyd, B. Gopinath, and E. Rantapaa, "On Optimum Signal Sets for Digital Communications with Finite Precision and Amplitude Constraints", *IEEE Transactions on Communications*, Vol. 39, No. 2, pp. 249-255, Feb. 1991.
57. D. Hajela and M. L. Honig, "Bounds on ε -Capacity for Linear, Time-Invariant, Multi-Input/Multi-Output Channels", *IEEE Transactions on Information Theory*, Vol. 36, No. 5, pp. 1089-1097, September 1990.
58. A. Friedman and M. L. Honig, "On Computing the Spread of Continuous-Time Linear Systems", *SIAM Journal on Math. Analysis*, Vol. 21, No. 3, pp. 757-770, May 1990.
59. M. L. Honig, K. Steiglitz, S. Boyd, and B. Gopinath, "Bounds on Maximum Throughput for Digital Communications with Finite Precision and Amplitude Constraints", *IEEE Transactions on Information Theory*, Vol. 36, No. 3, pp. 472-484, May 1990.
60. M. L. Honig, K. Steiglitz, and B. Gopinath, "Multi-Channel Signal Processing for Data Communications in the Presence of Crosstalk", *IEEE Transactions on Communications*, Vol. 38, No. 4, pp. 551-558, April 1990.
61. M. L. Honig and T. J. Ott, "On Waiting for Simultaneous Access to Two Resources", *Mathematics of Operations Research*, Vol. 14, No. 4, pp. 664-687, Nov. 1989.
62. M. L. Honig "On Constructing Embedded Multilevel Trellis Codes", *IEEE Trans. on Communications*, Vol. 36, No. 2, pp. 218-221, Feb. 1988.
63. M. L. Honig "On Waiting for Simultaneous Access to Two Resources: Deterministic Service Distribution", *IEEE Trans. on Automatic Control*, Vol. AC-32, No. 11, pp. 1022-1025, Nov. 1987.
64. M. L. Honig, "Optimization of Trellis Codes with Multilevel Amplitude Modulation with Respect to an Error Probability Criterion", *IEEE Trans. on Communications*, Vol. COM-34, No. 8, pp. 821-825, August 1986.
65. M. L. Honig, "Echo Cancellation of Voiceband Data Signals Using Recursive Least Squares and Stochastic Gradient Algorithms", *IEEE Trans. on Communications*, Vol. COM-33, No. 1, pp. 65-73, Jan. 1985.
66. M. L. Honig, "Analysis of a TDMA Network With Voice and Data Traffic", *Bell System Technical Journal*, Vol. 63, No. 8, pp. 1537-1563, Oct. 1984.
67. M. L. Honig and D. G. Messerschmitt, "Comparison of Least Squares and Stochastic Gradient Lattice Predictor Algorithms Using Two Performance Criteria", *IEEE Trans. on Acoustics, Speech, and Signal Processing*, Vol. ASSP-32, No. 2, pp. 441-445, April 1984.
68. S. M. Barta and M. L. Honig, "Analysis of a Demand Assignment TDMA Blocking System", *Bell System Technical Journal*, Vol. 63, No. 1, pp. 89-114, Jan. 1984.

69. M. L. Honig, "Recursive Fixed-Order Covariance Least-Squares Algorithms", *Bell System Technical Journal*, Vol. 62, No. 10, pp. 2961-2991, Dec. 1983.
70. M. L. Honig, "Convergence Models for Lattice Joint Process Estimators and Least Squares Algorithms" *IEEE Trans. on Acoustics, Speech, and Signal Processing*, Vol. ASSP-31, No. 2, 415-425, April 1983.
71. M. L. Honig and D. G. Messerschmitt, "Comparison of Adaptive Linear Prediction Algorithms in ADPCM", *IEEE Trans. on Communications*, Vol. COM-30, No. 7, pp. 1775-1785, July 1982.
72. M. L. Honig and D. G. Messerschmitt, "Convergence Properties of an Adaptive Digital Lattice Filter", *IEEE Trans. on Acoustics, Speech, and Signal Processing*, Vol. ASSP-29, No. 3, pp. 642-653, June 1981.

Papers in Review

1. W. Santipach and M. L. Honig, "Optimization of Training and Feedback Overhead for Beamforming over Block Fading Channels", submitted to *IEEE Transactions on Information Theory*, August 2009.
2. M. Agarwal, M. L. Honig, and B. Ata, "Adaptive Training for Correlated Fading Channels with Feedback", submitted to *IEEE Transactions on Information Theory*, August 2009.
3. M. Agarwal, D. Guo, and M. L. Honig, "Limited-Rate Channel State Feedback for Multicarrier Block Fading Channels", submitted to *IEEE Transactions on Information Theory*, January 2009.
4. M. Agarwal and M. L. Honig, "Wideband Fading Channel Capacity with Training and Partial Feedback", submitted to *IEEE Transactions on Information Theory*, August 2008.
5. Y. Zhu, D. Guo, and M. L. Honig, "A Message-Passing Approach for Joint Channel Estimation, Interference Mitigation and Decoding", submitted to *IEEE Transactions on Wireless Communications*, Dec. 2008.

Conference Papers

1. F. Rubio, D. Guo, M. L. Honig, and X. Mestre, "Asymptotic diversity analysis of MIMO systems with limited training", *International Conference on Ultra Modern Telecommunications (ICUMT)*, St. Petersburg, Russia, October 2009.
2. M. Xu, D. Guo, and M. L. Honig, "MIMO Precoding with Limited Rate Feedback: Simple Quantizers Work Well", *IEEE Globecom Conf.*, Honolulu, Hawaii, December 2009.

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