

# CURRICULUM VITAE

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Citizenship: Canada

## EDUCATION

Sept. 1985–  
Aug. 1989      **Dept. of Electrical Engineering and Computer Science**  
and **Operations Research Center**,  
**Massachusetts Institute of Technology**, Cambridge, Mass., USA  
- Candidate for Ph.D; completed August 1989  
- Minor in Computer Science;  
- Thesis topic: *Communication Complexity of Some Problems in Distributed Computation*; (Supervisor: J.N. Tsitsiklis)

Sept. 1984–  
May 1985      **Nankai Institute of Mathematics, Nankai University**, Tianjin, China  
- One year intensive training program in Mathematics and English, sponsored  
by the Ministry of Education of China.

Sept. 1980–  
May 1984      **Dept. of Mathematics, Peking University**, Beijing, China  
- B.Sc. in Applied Mathematics, 1984; GPA 4.9/5  
- Awarded several scholarships for outstanding academic performances, 1980-84.  
- Selected as one of the 15 students nationally by the Government of China and  
by a joint SIAM-AMS (*Society of Industrial and Applied Mathematics* and  
*American Mathematical Society*) committee for Ph.D study in the U.S.  
with full scholarship, 1984. (Also known as S.S. Chern Program)

## EMPLOYMENT HISTORY

- April 2003–  
present      **Dept. of Electrical and Computer Engineering, University of Minnesota**  
*Professor and ADC Chair in Digital Technology*
- July 2001–  
July 2004      **Dept. of Electrical and Computer Engineering, McMaster University**  
*Canada Research Chair in Information Processing*
- July 2000–  
April 2003      **Dept. of Electrical and Computer Engineering, McMaster University**  
*Department Head*
- July 1998–  
June 2005      **Dept. of Electrical and Computer Engineering, McMaster University**  
*Full Professor*
- July 1992–  
June 2003      **Dept. of Computing and Software, McMaster University**  
*Associate member*
- July 1993–  
June 1998      **Dept. of Electrical and Computer Engineering, McMaster University**  
*Tenured Associate Professor*
- Sept. 1989–  
June 1993      **Dept. of Electrical and Computer Engineering, McMaster University**  
*Tenure Track Assistant Professor*
- Jan. 1986–  
Aug. 1989      **Laboratory for Information and Decision Systems, MIT**  
*Research Assistant*  
Research to determine the minimum amount of information that has to be exchanged in order for a set of processors to solve a problem cooperatively.
- Sept. 1985–  
Dec. 1985      **Center for Technology, Policy and Industrial Development, MIT**  
*Research Assistant*

## PROFESSIONAL MEMBERSHIP

Fellow of IEEE, Member of SIAM, MPS

## PROFESSIONAL ACTIVITIES AND AWARDS

1. Vice chair, IEEE Signal Processing Society Technical Committee on Signal Processing for Communications (SPCOM), 2009-2010.
2. Member of IEEE Signal Processing Society Technical Committees on Signal Processing for Communications (SPCOM) and on Signal Processing Theory and Methods (SPTM), 2006-2012.
3. Distinguished Lecturer for the *IEEE Sensor Array and Multichannel Signal Processing Workshop*, Waltham, MA, June 2006.
4. 2004 ICASSP Best Student Paper Award (with Ph.D student M. Kisialiou).
5. 2004 IEEE Signal Processing Society Best Paper Award for the paper “Robust Adaptive Beamforming Using Worst-Case Performance Optimization: A Solution to the Signal Mismatch Problem” which appeared in *IEEE Transactions on Signal Processing*, (co-authors: Vorobyov and Gershman), February 2003.
6. ADC Chair in Digital Technology, University of Minnesota, since April 2003.
7. Canada Research Chair in Information Processing, McMaster University, July 2001-July 2004.
8. Plenary speaker, *International Symposium on Mathematical Programming*, Copenhagen, Denmark, August, 2003.
9. Member of the Technical Committees on Signal Processing for Communications, and on Signal Processing Theory and Methods, IEEE Signal Processing Society.
10. Invited tutorial on “Convex Optimization Techniques for Signal Processing”, *IEEE International Conference on Acoustics Speech and Signal Processing*, Orlando, Florida, 2002.
11. Best Paper Award in the *International Conference on Optimization Techniques and Applications*, for the paper “Optimal Transceiver Design Via Convex Optimization”, December 2001, Hong Kong.

12. Visiting Professor (September 2000 – December 2000), Department of Applied Mathematics and Physics, School of Informatics, Kyoto University, Kyoto, Japan.
13. Visiting Professor (September 2003 – December 2003), Information Systems Laboratory, Department of Electrical Engineering, Stanford University, USA.
14. Visiting Examiner (2003 – 2006), Department of Systems Engineering and Engineering Management, Chinese University of Hong Kong, Hong Kong.
15. International Research Fellowship from K.C. Wong Education Foundation (Hong Kong) through Chinese Academy of Science, 1996.
16. Guest co-editor, special issue of *IEEE Journal of Selected Areas of Communications* on ‘Nonlinear Optimization of Communication Systems’, 2006.
17. Guest co-editor for a special issue of *IEEE Signal Processing Magazine* on Distributed Signal Processing for Sensor Networks, 2006.
18. Guest co-editor, special issue of *Eurasip Journal on Applied Signal Processing*, on ‘Multisensor Processing for Signal Extraction and Applications’, 2006.
19. Associate editor for
  - *Management Science*, since 2009
  - *Journal of Optimization Theory and Applications*, 1991–2003
  - *SIAM Journal on Optimization*
  - *Mathematics of Computation*, 1999–2004
  - *Mathematical Programming*, series B
  - *Mathematics of Operations Research*
  - *IEEE Transactions on Signal Processing*, 2000–2004
  - *Optimization and Engineering*
20. Guest Professor, School of Mathematical Sciences, Peking University, P.R. China, 2009–2011.
21. Adjunct Professor, Department of Information Science and Engineering, Nanchang University, Jiangxi, P.R. China.
22. Adjunct Professor, Department of Applied Mathematics, Shanghai University, Shanghai, P.R. China.

23. Referee of numerous NSF (U.S.), NSERC (Canada), and RGC (Hong Kong) grant applications on Applied Mathematics, Signal Processing, Circuits and Systems
24. Served on CITO (*Communication and Information Technology Ontario*, a provincial research center of excellence) research program review panel and NSF proposal review panel in the area of computational sciences and information technology.
25. Organizer of 1998 international workshop on Optimization Methods and Applications, held in City University of Hong Kong.
26. Organizer and session chairperson of many international conferences on high performance computing and optimization methods.
27. Nominated twice for the McMaster University teaching award by the McMaster Student Union.

## RESEARCH FUNDING (1997 – present)

1. US AFOSR, \$280,949, 2009–2012.
  - Project title: Optimization Algorithms and Equilibrium Analysis for Dynamic Resource Allocation
  - Principal investigator: Luo, Z.-Q.
2. US DOD Army, \$255,000, 2009–2012.
  - Project title: Dynamic Spectrum Management: Complexity, Duality and Approximation
  - Principal investigator: Luo, Z.-Q.
3. ADC Endowed Chair operating fund, \$45,000 per annum, 2009-2014, University of Minnesota Foundation
  - Principal investigator: Luo, Z.-Q.
4. Digital Technology Center, University of Minnesota, \$28,500, 2007-2008
  - Project title: Optimal B1 Shimming for Ultra High Field Human Scanners
  - Principal investigator: Luo, Z.-Q., Co-PI: Van de Moortele, P.F.
5. Institute of Technology, University of Minnesota, \$10,000, 2007-2008
  - Project title: Mathematical Algorithms for Image Processing
  - Principal investigator: Luo, Z.-Q., Co-PI: Ming, Jiang (Peking University)
6. National Science Foundation (CMMI), \$314,604, 2007–2010.
  - Project title: Optimal Resource Management: Complexity, Duality and Approximation
  - Principal investigator: Luo, Z.-Q.
7. National Science Foundation (DMS), \$150,000, 2006–2009.
  - Project title: High Performance Approximation Algorithms for Nonconvex Quadratic Optimization with Applications in Signal Processing and Communication
  - Principal investigator: Luo, Z.-Q.
8. US DOD ARMY, \$300,000, 2005–2008.

- Project title: Mathematical Analysis of the Signal Processing Capabilities of Sensor Networks
  - Principal investigator: Luo, Z.-Q.
9. National Science Foundation (DMS), \$188,000, 2003–2007.
- Project title: Convex Optimization Techniques in Signal Processing and Communication
  - Principal investigator: Luo, Z.-Q.
10. ADC Chair operating fund, \$50,000 per annum, 2003-2008, University of Minnesota Foundation
- Principal investigator: Luo, Z.-Q.
11. Operating grant from Canada Research Chairs program, \$200,000 per annum, 2001–2008.
- Principal investigator: Luo, Z.-Q.
12. Research grant from Ontario Innovation Trust, \$49,660 per annum, 2001-2005.
- Principal investigator: Luo, Z.-Q.
13. Research Grant from Canada Foundation for Innovation, \$49,660 per annum, 2001-2005.
- Project title: Testing and Analysis Equipment for Information Processing Lab.
  - Principal investigator: Luo, Z.-Q.
14. Research grant from NSERC, \$42,000 per annum, 1999–2003.
- Project title: Advanced Optimization Algorithms for Digital Communication and Signal Processing.
  - Principal investigator: Luo, Z.-Q.
15. Research contract from CITO, \$90,000 per annum 2000-2002.
- Project title: Data Fusion with Applications to Multi-target Tracking
  - Principal investigator: Luo, Z.-Q., Co-investigators: Bosse, E. and Wong, M.
16. Research contract from CITO, \$75,000 per annum 2001-2003.
- Project title: Algorithmic Issues in Practical Communication
  - Principal investigator: Luo, Z.-Q., Co-investigators: Davidson, T.N.

17. International Cooperative Research Project sponsored by the Ministry of Education, Science, Sports and Culture of Japan, \$9,900,000 (Yen), 1999-2001.
  - Project title: Synthesis, Analysis, and Algorithms for Equilibrium Problems
  - Principal investigator: Fukushima, M. (Kyoto University, Japan), Co-investigators: Kanzow, C. (Germany), Luo, Z.-Q. (Canada), Qi, L. (Australia), Pang, J.S., Tseng, P. (U.S.A.), Chen, X., Yamashita (Japan).
18. Research contract from CITO, \$50,000 per annum, 1998-2000.
  - Project title: Data Fusion with Applications to Multi-target Tracking
  - Principal investigator: Luo, Z.-Q., Co-investigators: Bosse, E. and Wong, M.
19. Research contract from Groupe Informission, \$30,000 per annum, 1998-2000.
  - Project title: Data Fusion with Applications to Multi-target Tracking
  - Principal investigator: Luo, Z.-Q., Co-investigators: Bosse, E. and Wong, M.
20. Research contract from Nortel Networks, \$22,000, 1998-1999.
  - Project title: High Order Statistics Methods for Blind Signal Separation
  - Principal Investigator: Luo, Z.-Q.
21. Research contract from Ontario Hydro Technology, \$17,000, 1998-1999.
  - Project title: Feasibility Study of Digital Communication over Power Lines.
  - Principal investigator: Luo, Z.-Q., Co-investigators: Davidson, T., Reilly, J.P.
22. Research contract from DREV, \$120,000, 1997-1999.
  - Project title: Multi-target Tracking and Data Fusion
  - Principal investigator: Luo, Z.-Q., Co-investigator: Wong, K.M.
23. Research grant from NSERC, \$33,300 per annum, 1995–1999.
  - Project title: Mathematical Programs with Equilibrium Constraints
  - Principal investigator: Luo, Z.-Q.
24. Research contract from DREO, \$74,405, 1997-1998.
  - Project title: DSP implementation of On-line Classification Algorithms for Intra-Pulse Analysis.
  - Principal investigator: Luo, Z.-Q., Co-investigator: Wong, K.M.

25. Research contract from DREO, \$55,000, 1996-1997.

- Project title: Intra-Pulse Analysis of Passive Emitters
- Principal investigator: Wong, K.M., Co-investigator: Luo, Z.-Q.

26. Research contract from DREV, \$112,000, 1994-1997.

- Project title: Pre-Processing Techniques for Multi-target Tracking and Data Association
- Principal investigator: Wong, K.M., Co-investigators: Luo, Z.-Q. and Yip, P.

## PUBLICATIONS

### A. Refereed Journal Publications

- **Journal Papers (published or accepted)**

1. Yang, K.-H., Wang, G. and Luo, Z.-Q., “Efficient Convex Relaxation Methods for Robust Target Localization by a Sensor Network Using Time Differences of Arrivals,” Accepted for publication in *IEEE Transactions on Signal Processing*, 2009.
2. Gohary, R., Huang, Y., Luo, Z.-Q. and Pang, J.-S., “A Generalized Iterative Water-filling Algorithm for Distributed Power Control in the Presence of a Jammer,” Accepted for publication in *IEEE Transactions on Signal Processing*, 2009.
3. Luo, Z.-Q. and Zhang, S., “Duality Gap Estimation and Polynomial Time Approximation for Optimal Spectrum Management,” Accepted for publication in *IEEE Transactions on Signal Processing*, 2009.
4. De Maio, A., De Nicola, S., Huang, Y., Luo, Z.-Q. and Zhang, S., “Design of Phase Codes for Radar Performance Optimization With a Similarity Constraint,” Accepted for publication in *IEEE Transactions on Signal Processing*.
5. Hayashi, S. and Luo, Z.-Q., “Spectrum Management for Interference-limited Multiuser Communication Systems,” *IEEE Transactions on Information Theory*, accepted.
6. Srirangarajan, S., Tewfik, A. and Luo, Z.-Q., “Distributed Sensor Network Localization Using SOCP Relaxation,” Accepted for publication in *IEEE Transactions on Wireless Communications*, 2008.
7. Nassab, V.M., Shahbazpanahi, S., Grami, A. and Luo, Z.-Q., “Distributed Beamforming for Relay Networks based on Second Order Statistics of the Channel State Information,” *IEEE Transactions on Signal Processing*, Vol. 56, No 9, pp. 4306–4316, September 2008.
8. He, S., Luo, Z.-Q., Nie, J.W. and Zhang, S., “Semidefinite Relaxation Bounds for Indefinite Homogeneous Quadratic Optimization,” Accepted for publication in *SIAM Journal on Optimization*, December 2007.
9. Luo, Z.-Q. and Zhang, S., “Dynamic Spectrum Management: Complexity and Duality,” *IEEE Journal of Selected Topics in Signal Processing*, Special Issue on Signal Processing and Networking for Dynamic Spectrum Access, Vol. 2, No. 1, pp. 57–73, February 2008.
10. Singh, J., Luo, Z.-Q. and Sapatnekar, S., “A Geometric Programming-based Worst-Case Gate Sizing Method Incorporating Spatial Correlation,” *IEEE Transactions on Computer-Aided Design*, Vol. 27, No. 2, pp. 295–308, February 2008.

11. Matakani, E., Sidiropoulos, N.D., Luo, Z.-Q. and Tassiulas, L., "Convex Approximation Techniques for Joint Multiuser Downlink Beamforming and Admission Control," *IEEE Transactions on Wireless Communication*, Vol. 7, No. 7, pp. 2682–2693, July, 2008.
12. Xiao, J.-J. and Luo, Z.-Q., "Multiterminal Source-Channel Communication Under Orthogonal Multiple Access," *IEEE Transactions on Information Theory*, Vol. 53, No. 9, pp. 3255–3264, September 2007.
13. S.-J. Kim, Magnani, A., Mutapcic, A., Boyd, S.P., and Luo, Z.-Q., "Robust Beamforming via Worst-Case SINR Maximization," Accepted for publication in *IEEE Transactions on Signal Processing*, May 2007.
14. Xiao, J.-J., Cui, S., Luo, Z.-Q., and Goldsmith, A.J., "Linear Coherent Decentralized Estimation," *IEEE Transactions on Signal Processing*, Vol. 56, No. 2, pp. 757–770, February 2008.
15. Karipidis, E., Sidiropoulos, N.D. and Luo, Z.-Q., "Far-Field Multicast Beamforming for Uniform Linear Antenna Arrays," *IEEE Transactions on Signal Processing* Vol. 55, No. 10, pp. 4916–4927, October 2007.
16. Cui, S., Xiao, J.-J., Goldsmith, A.J., Luo, Z.-Q. and Poor, H.V., "Estimation Diversity and Energy Efficiency in Distributed Sensing," *IEEE Transactions on Signal Processing*, Vol. 55, No. 9, pp. 4683–4695, 2007.
17. Schizas, I.D., Giannakis, G.B. and Luo, Z.-Q., "Distributed Estimation Using Reduced Dimensionality Sensor Observations," *IEEE Transactions on Signal Processing*, Vol. 55, No. 8, pp. 4284–4299, August 2007.
18. Luo, Z.-Q. and Yu, W., "An Introduction to Convex Optimization for Communications and Signal Processing," *IEEE Journal on Selected Areas of Communication*, Vol. 24, No. 8, pp. 1–13, August 2006.
19. Xiao, J.-J., Ribeiro, A., Giannakis, G.B. and Luo, Z.-Q., "Distributed Compression-estimation Using Wireless Sensor Networks," *IEEE Signal Processing Magazine*, Vol. 23, No. 4, pp. 27–41, July 2006.
20. Luo, Z.-Q., Sidiropoulos, N.D., Tseng, P. and Zhang, S., "Approximation Bounds for Quadratic Optimization with Homogeneous Quadratic Constraints," Accepted for publication in *SIAM Journal on Optimization*.
21. Xiao, J.-J., Luo, Z.-Q., and Giannakis, G.B., "Performance Bounds for the Rate-Constrained Universal Decentralized Estimators," *IEEE Signal Processing Letters*, Vol. 14, No. 1, pp. 47–50, 2007.
22. Xiao, J.-J., Cui, S., Luo, Z.-Q. and Goldsmith, A.J., "Power Scheduling of Universal Decentralized Estimation in Sensor Networks," *IEEE Transactions on Signal Processing*, Vol. 54, No. 2, pp. 413–422, 2006.

23. Sidiropoulos, N.D. and Luo, Z.-Q., "A Semidefinite Relaxation Approach to MIMO Detection for High-order QAM Constellations," *IEEE Signal Processing Letters*, Vol. 13, pp. 525–528, September 2006.
24. Ohno, S., Giannakis, G. and Luo, Z.-Q., "Multi-Carrier Multiple Access is Sum-Rate Optimal for Block Transmissions over Circulant ISI Channels," *IEEE Journal on Selected Areas in Communication*, Special issue on "Advances in Multicarrier CDMA", Vol. 24, No. 6, pp. 1256–1260, June 2006
25. Luo, Z.-Q. and Pang, J.-S., "Analysis of Iterative Waterfilling Algorithm for Multiuser Power Control in Digital Subscriber Lines," Special issue of *EURASIP Journal on Applied Signal Processing* on Advanced Signal Processing Techniques for Digital Subscriber Lines, Vol. 2006, Article ID 24012, 10 pages, 2006.
26. Sidiropoulos, N.D., Davidson, T.N., and Luo, Z.-Q., "Transmit Beamforming for Physical Layer Multicasting," *IEEE Transactions on Signal Processing*, Vol. 54, No. 6, pp. 2239–2251, 2006.
27. Xiao, J.-J., Cui, S., Luo, Z.-Q. and Goldsmith, A.J., "Joint Estimation in Sensor Networks under Energy Constraints," *IEEE Transactions on Signal Processing*, Vol. 54, No. 2, pp. 413–422, Feb. 2006.
28. Krasnoperov, A., Xiao, J.-J. and Luo, Z.-Q., "Minimum Energy Decentralized Estimation in a Wireless Sensor Network with Correlated Sensor Noise," Special issue of *EURASIP Journal on Wireless Communications and Networking* on Wireless Sensor Networks, Vol. 2005, Issue 4, pp. 473–482, 2005.
29. Luo, Z.-Q., "Universal Decentralized Estimation in a Bandwidth Constrained Sensor Network," *IEEE Transactions on Information Theory*, Vol. 51, No. 6, pp. 2210–2219, June 2005.
30. Saad, M. and Luo, Z.-Q., "Reconfiguration with No Service Disruption in Multifiber WDM Networks," *IEEE/OSA Journal of Lightwave Technology*, Vol. 23, No. 10, pp. 3092–3104, October 2005.
31. Saad, M. and Luo, Z.-Q., "Design of WDM Networks Under Economy of Scaling Pricing and Shortest Path Routing," *IEEE Journal on Selected Areas of Communication*, Special issue on "Optical Communications and Networking (OCN)", Vol. 24, No. 4, April 2006.
32. Luo, Z.-Q. and Xiao, J.-J., "Universal Decentralized Estimation in an Inhomogeneous Environment," *IEEE Transactions on Information Theory*, Vol. 51, No. 10, pp. 3564–3575, October 2005.
33. Gershman, A., Luo, Z.-Q. and Shahbazpanahi, S., "Robust Adaptive Beamforming Based on Worst-Case Performance Optimization," in *Robust Adaptive Beamforming*, edited by Jian Li and Petre Stoica, John Wiley & Sons, Inc., 2005.

34. Liu, J., Lee, J., Li, L., Luo, Z.-Q. and Wong, K.M., "On-line Clustering Algorithms for Radar Emitter Classification," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol. 27, No. 8, pp. 1185–1196, Aug. 2005.
35. Luo, Z.-Q., "An Isotropic Universal Decentralized Estimation Scheme for a Bandwidth Constrained Ad Hoc Sensor Network," *IEEE Journal on Selected Areas in Communications*, a special issue on Self-Organizing Distributed Collaborative Sensor Networks, Vol. 23, No. 4, pp. 735–744, April 2005.
36. Yu, J.X., Li, Y., Luo, Z.-Q. and Yoshida, S., "Split Soft-decision Equalization for Wireless Channels with Large Delay Spread," *IEEE Transactions on Communications*, Vol. 53, No. 2, pp. 269–277, February 2005.
37. Xiao, J.-J. and Luo, Z.-Q., "Universal Decentralized Detection with a Bandwidth Constrained Sensor Network," *IEEE Transactions on Signal Processing*, Vol. 53, No. 8, pp. 2617–2624, August 2005.
38. Cui, S., Kisiailiou, M., Luo, Z.-Q. and Ding, Z., "Robust Blind Multiuser Detection against Signature Waveform Mismatch," *IEEE Transactions on Wireless Communication*, Vol. 4, No. 4, pp. 1285–1291, 2005.
39. Yan, Z., Wong, K.M. and Luo, Z.-Q., "Optimal Diagonal Precoder for Multi-antenna Communication Systems," *IEEE Transactions on Signal Processing*, Vol. 53, No. 6, June 2005.
40. Zarifi, K., Shahpazpanahi, S., Gershman, A. and Luo, Z.-Q., "Robust Blind Multiuser Detection Based on the Worst-Case Performance Optimization of the MMSE Receiver," *IEEE Transactions on Signal Processing*, Vol. 53, No. 1, pp. 295–305, January 2005.
41. Yamashita, N. and Luo, Z.-Q., "A Nonlinear Complementarity Approach to Multiuser Power Control for Digital Subscriber Lines," *Optimization Methods and Software*, Vol. 19, No. 5, pp. 633–652, October, 2004.
42. Saad, M. and Luo, Z.-Q., "On the Routing and Wavelength Assignment in Multifiber WDM Networks," *IEEE Journal on Selected Areas in Communications*, Special issue on "Optical Communications and Networking (OCN)", Vol. 22, pp. 1708–1717, 2004.
43. Luo, Z.-Q., Sturm, J. and Zhang, S., "Multivariate Nonnegative Quadratic Mappings," *SIAM Journal on Optimization*, Vol. 14, No. 4, pp. 1140–1162, 2004.
44. Luo, Z.-Q., Davidson, T.N., Giannakis, G.B. and Wong, K.M., "Transceiver Optimization for Multiple Access through ISI Channels", *IEEE Transactions on Signal Processing*, Vol. 52, No. 4, pp. 1037–1052, 2004.

45. Vorobyov, S., Gershman, A., Luo, Z.-Q. and Ma, N., "Adaptive Beamforming with Joint Robustness Against Mismatched Signal Steering Vector and Interference Non-stationarity," *IEEE Signal Processing Letters*, Vol. 11, No. 2, pp. 108–111, February, 2004.
46. Steingrimsson, B., Luo, Z.-Q. and Wong, K.M., "Soft Quasi-Maximum-Likelihood Detection for Multiple-Antenna Channels," *IEEE Transactions on Signal Processing*, Vol. 51, No. 11, pp. 2710–2719, November, 2003.
47. Luo, Z.-Q., "Applications of Convex Optimization in Signal Processing and Digital Communication," *Mathematical Programming*, Vol. 97, Series B, pp. 177–207, 2003.
48. Shahbazpanahi, S., Gershman, A., Luo, Z.-Q. and Wong, K.M., "Robust Adaptive Beamforming For General-Rank Signal Models," *IEEE Transactions on Signal Processing*, Vol. 51, No. 9, pp. 2257–2269, September 2003.
49. Luo, Z.-Q. and Lu, J., "Blind Separation for Instantaneously Mixed Signals," *Mathematical Programming*, Series B, Vol. 97, No. 3, pp. 587–603, August 2003.
50. Mirjalily, G., Luo, Z.-Q., Davidson, T. and Bosse, E., "Blind Adaptive Decision Fusion for Distributed Detection", *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 39, No. 1, pp. 34–52, January 2003.
51. Liu, J., Gershman, A. and Luo, Z.-Q., "Adaptive Beamforming with Sidelobe Control: A Second Order Cone Programming Approach," *IEEE Signal Processing Letters*, Vol. 10, pp. 331–334, November, 2003.
52. Vorobyov, S., Gershman, A. and Luo, Z.-Q., "Robust Adaptive Beamforming Using Worst-Case Performance Optimization: A Solution to the Signal Mismatch Problem," *IEEE Transactions on Signal Processing*, Vol. 51, No. 2, pp. 313–323, February 2003.
53. Ding, Y.-W., Davidson, T.N., Luo, Z.-Q. and Wong, K.M., "Minimum BER Block Precoders for Zero-forcing Equalization," *IEEE Transactions on Signal Processing*, Vol. 51, No. 9, pp. 2410–2423, September 2003.
54. Maricic, B., Luo, Z.-Q. and Davidson, T.N., "Blind Constant Modulus Equalization via Convex Optimization," *IEEE Transactions on Signal Processing*, Vol. 51, pp. 805–818, March 2003.
55. Davidson, T.N., Luo, Z.-Q. and Sturm, J., "Linear Matrix Inequality Formulation of Spectral Mask Constraints," *IEEE Transactions on Signal Processing*, Vol. 50, pp. 2702–2715, November 2002.
56. Pesavento, M., Gershman, A. and Luo, Z.-Q., "Robust Array Interpolation Using Second-Order Cone Programming," *IEEE Signal Processing Letters*, Vol. 9, pp. 8–11, 2002.

57. Ma, W.-K., Davidson, T.N., Wong, K.M., Luo, Z.-Q. and Ching, P.-C., "Quasi-maximum-likelihood multiuser detection using semi-definite relaxation," *IEEE Transactions on Signal Processing*, Vol. 50, pp. 912–922, April 2002.
58. Luo, Z.-Q., Meng, M., Wong, K.M. and Zhang, J.-K., "A Fractionally Spaced Blind equalizer Based on Linear Programming," *IEEE Transaction on Signal Processing*, Vol. 50, pp. 1650–1660, July 2002.
59. Li, L., Luo, Z.-Q., Wong, K.M. and Bossé, E., "Robust Filtering via Semidefinite Programming with Applications to Target Tracking," *SIAM Journal on Optimization*, Vol. 12, pp. 740–755, 2002.
60. Fukushima, M., Luo, Z.-Q. and Tseng, P., "A Sequential Quadratically Constrained Quadratic Programming Method for Differentiable Convex Minimization," *SIAM Journal on Optimization*, Vol. 12, No. 2, pp. 436-460, 2001.
61. Zhang, J.-K., Davidson, T.N., Luo, Z.-Q. and Wong, K.M., "Design of Interpolating Biorthogonal Multiwavelet Systems with Compact Support," *Applied and Computational Harmonic Analysis*, Vol. 11, pp. 420–438, 2001.
62. Afkhamie, K.H., Luo, Z.-Q. and Wong, K.M., "MMSE Decision-Feedback Equalization with Short Training Sequences: An Application of Interior Point Least Squares," *IEEE Transactions on Signal Processing*, Vol. 49, pp. 1543–1555, July 2001.
63. Fukushima, M., Luo, Z.-Q. and Tseng, P., "Smoothing Functions for Second-Order-Cone Complementarity Problems," *SIAM Journal on Optimization*, Vol. 12, No. 2, pp. 436-460, 2001.
64. Li, L., Luo, Z.-Q., Wong, K.M. and Bossé, E. "Convex Optimization Approach to Identity Fusion For Multi-Sensor Target Tracking," *IEEE Transaction on Systems, Man and Cybernetics*, Part A: Systems and Humans, Vol. 31, No. 3, pp. 172–178, 2001.
65. Fu, M., Souza, C. and Luo, Z.-Q., "Finite Horizon Robust Kalman Filter Design," *IEEE Transactions on Signal Processing*, Vol. 49, pp. 2103–2112, Sept. 2001.
66. Luo, Z.-Q., "New Error Bounds and Their Applications to Convergence Analysis of Iterative Algorithms," *Mathematical Programming, Series B*, Vol. 88, pp. 341–356, 2000.
67. Luo, Z.-Q., Sturm, J.F. and Zhang, S., "Conic Convex Programming and Self-dual Embedding," *Optimization Methods and Software*, Vol. 14, No. 3, pp. 169–218, 2000.
68. Ding, Z. and Luo, Z.-Q., "A Fast Linear Programming Algorithm for Blind Equalization," *IEEE Transactions on Communications*, Vol. 48, pp. 1432–1436, September, 2000.

69. Afkhamie, K.H. and Luo, Z.-Q., "Blind Identification of FIR Systems Driven by Markov-Like Input Signals," *IEEE Transactions on Signal Processing*, Vol. 48, No. 6, pp. 1726–1736, 2000.
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• **Journal Papers (submitted)**

1. Nekuii, M., Kisialiou, M., Davidson, T. N. and Luo, Z.-Q., “Efficient Soft Demodulation of MIMO QPSK via Semidefinite Relaxation,” Submitted to *IEEE Transactions on Signal Processing*, April 2008.
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## B. Selected Refereed Conference Papers

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68. Luo, Z.-Q. and Tseng, P., "Analysis of the Back Propagation Algorithm for Neural Networks with Arbitrary Error Functions," presented at the Symposium of Parallel Optimization 3, Madison, University of Wisconsin, July, 1993.
69. Luo, Z.-Q. and Tseng, P., "Analysis of the Back Propagation Algorithm for Neural Networks with Arbitrary Error Functions," presented at the Symposium of Parallel Optimization 3, Madison, University of Wisconsin, July, 1993.
70. Jin, Q., Wong, K. M. and Luo, Z. Q., "Wideband Time Delay and Doppler Stretch Estimation: the Application of Wavelet Transform and the Optimum Signal," *Proceedings of ICASSP93*, Minneapolis, Minnesota, June, 1993.
71. Luo, Z.-Q. and Tseng, P., "Error Bounds and Convergence Analysis of Feasible Descent Methods for Solving Symmetric Variational Inequality Problems," presented at the ORSA/TIMS conference, San Francisco, October, 1992.
72. Luo, Z.-Q. and Tseng, P., "Error Bounds and Convergence Analysis of Feasible Descent Methods for Solving Symmetric Variational Inequality Problems," presented at the ORSA/TIMS conference, San Francisco, October, 1992.
73. Luo, Z.-Q. and Tseng, P., "Convergence Studies of Matrix Splitting Algorithms for the Linear Complementarity Problems," presented at the ORSA/TIMS conference, Nashville, Tennessee, May, 1991.
74. Luo, Z.-Q. and Tseng, P., "On the Hoffman's Error Bound for a Polyhedral Set," presented at the 14th International Symposium on Mathematical Programming, Amsterdam, The Netherlands, August, 1991.
75. Luo, Z.-Q. and Tsitsiklis, J., "On the Communication Complexity of Solving a Polynomial Equation," presented at *1990 International Symposium on Information Theory*, San Diego, California, January, 1990.
76. Luo, Z.-Q. and Tseng, P., "Convergence Studies of Coordinate Descent Algorithms for Convex Minimization Problems," presented at the ORSA/TIMS conference, Philadelphia, October, 1990.
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### C. Books and Special Issues

1. Luo, Z.-Q, Pang, J.-S. and Ralph, D., *Mathematical Programs with Equilibrium Constraints*, Cambridge University Press, 400 pages, 1996.
2. Luo, Z.-Q. and Pang, J.-S. (Guest Editors), *Error Bounds and Their Applications in Mathematical Programming*, **Mathematical Programming**, Series B, 2000.
3. Chiang, M., Low, S., Luo, Z.-Q., Shroff, N. and Yu, W. (Guest Editors), Special issue of *IEEE Journal of Selected Areas of Communications* on ‘Nonlinear Optimization of Communication Systems’, 2006.
4. Luo, Z.-Q., Gastpar, M., Liu, J. and Swami, A., (Guest Editors), Special issue of *IEEE Signal Processing Magazine* on ‘Distributed Signal Processing for Sensor Networks’, 2006.

### INVITED PRESENTATIONS (2002 – present)

1. Colloquium speaker, Department of Electrical Engineering, Princeton University, March, 2008.
2. Colloquium speaker, Department of Industrial and Enterprise Systems Engineering, UIUC, October 2007.
3. Colloquium speaker, Department of Electrical and Computer Engineering, Syracuse University, October 2007.

4. Invited speaker, Department of Electrical and Computer Engineering, Texas A&M University, October 2007.
5. Invited speaker, Signals and Systems Distinguished Seminar Series, Department of Electrical Engineering, UCLA, October 2007.
6. Invited speaker, Distinguished Lecture Series, Department of Electrical Engineering, KTH, Sweden, December 2006.
7. Invited speaker, 2006 BIRS Workshop on Optimization and Engineering, Banff, November, Canada.
8. Plenary speaker, 2006 MOPTA Conference, Waterloo, Canada, July 2006.
9. Invited speaker, 2006 Annual Meeting of the Operations Research Society of China, Shenzhen, China, June 2006.
10. Invited speaker, Microsoft Research, Redmond, Washington, August 2006.
11. Invited speaker, Hughes Network Systems, Germantown, Maryland, March 2006.
12. Distinguished Lecturer, *IEEE Sensor Array and Multichannel Signal Processing Workshop*, Waltham, MA, June 2006.
13. Distinguished Lecturer, Program in Computation, Design and Optimization (CDO), MIT, March 2006.
14. Colloquium speaker, Laboratory for Information and Decision Systems, MIT, March 2006.
15. Invited speaker, The third Sino-Japan Optimization Meeting, Singapore, November 2005.
16. Colloquium speaker, Cornell University, School of Operations Research and Industrial Engineering, February 2005.
17. Invited speaker, Distinguished Lecture Series, Department of Electrical and Computer Engineering, University of Waterloo, May 2004.
18. Colloquium speaker, Department of Electrical and Computer Engineering, UCLA, November 2003.
19. Invited speaker, Information Systems Laboratory, Department of Electrical Engineering, Stanford University, October, 2003.
20. Invited speaker, Department of EECS, UC Berkeley, October 2003.

21. Semi-plenary speaker, International Symposium on Mathematical Programming, Copenhagen, Denmark, August 2003.
22. Tutorial, IEEE International Conference on Acoustics Speech and Signal Processing, Orlando, Florida, 2002.
23. Invited speaker, Department of Industrial and Systems Engineering, and School of Electrical and Computer Engineering, Georgia Institute of Technology, April 2002.
24. Colloquium speaker, the Johns Hopkins University, Department of Mathematical Sciences, February 2002.