

## Michael C. Fu – Papers August 2017

### Articles in Refereed Journals

1. M.C. Fu, "On the Consistency of Second Derivative Perturbation Analysis Estimators for the M/G/1 Queue," *Applied Mathematics Letters*, Vol.2, No.2, 193–197, 1989.
2. M.C. Fu, "Convergence of a Stochastic Approximation Algorithm for the GI/G/1 Queue Using Infinitesimal Perturbation Analysis," *Journal of Optimization Theory and Applications*, Vol.65, No.1, 149–160, 1990.
3. M.C. Fu and J.Q. Hu, "Consistency of Infinitesimal Perturbation Analysis for the GI/G/m Queue," *European Journal of Operational Research*, Vol.54, No.1, 121–139, 1991.
4. M.C. Fu and J.Q. Hu, "On Choosing the Characterization for Smoothed Perturbation Analysis," *IEEE Transactions on Automatic Control*, Vol.36, No.11, 1331–1336, 1991.
5. M.C. Fu, J.Q. Hu and R. Nagi, "Bias Properties of Infinitesimal Perturbation Analysis for Systems with Parallel Servers," *Computers & Operations Research*, Vol.19, No.5, 409–423, 1992.
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7. J. Michaels, J.E. Brennan, B.L. Golden, and M.C. Fu, "A Simulation Study of Donor Scheduling Systems for the American Red Cross," *Computers & Operations Research*, Vol.20, No.2, 199–213, 1993.
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9. M.C. Fu and J.Q. Hu, "Sample Path Properties of the G/D/m Queue," *European Journal of Operational Research*, Vol.65, No.2, 270–273, 1993.
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11. M.C. Fu, "Sample Path Derivatives for (s,S) Inventory Systems," *Operations Research*, Vol.42, No.2, 351–364, 1994.
12. M.C. Fu, "Optimization via Simulation: A Review," *Annals of Operations Research*, Vol.53, 199–248, 1994.
13. S. Bashyam and M.C. Fu, "Application of Perturbation Analysis to a Class of Periodic Review (s,S) Inventory Systems," *Naval Research Logistics*, Vol.41, No.1, 47–80, 1994.
14. M.C. Fu and J.Q. Hu, "Smoothed Perturbation Analysis Derivative Estimation for Markov Chains," *Operations Research Letters*, Vol.15, No.5, 241–251, 1994.
15. M.C. Fu and J.Q. Hu, "(s,S) Inventory Systems with Random Lead Times: Harris Recurrence and Its Implications in Sensitivity Analysis," *Probability in the Engineering and Informational Sciences*, Vol.8, No.3, 355–376, 1994.
16. M.C. Fu and J.Q. Hu, "On Unbounded Hazard Rates for Smoothed Perturbation Analysis," *Journal of Applied Probability*, Vol.32, No.3, 659–667, 1995.

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19. M.C. Fu and J.Q. Hu, "Addendum to 'Extensions and Generalizations of Smoothed Perturbation Analysis in a Generalized Semi-Markov Process Framework'," *IEEE Transactions on Automatic Control*, Vol.40, No.7, 1286–1287, 1995.
20. M.C. Fu and J.Q. Hu, "On the Relationship of Capacitated Production/Inventory Models to Manufacturing Flow Control Models," *Operations Research Letters*, Vol.18, No.1, 15–24, 1995.
21. M.C. Fu and B.K. Kaku, "Minimizing Work-in-Process and Material Handling in the Facilities Layout Problem," *IIE Transactions*, Vol.29, No.1, 29–36, 1997.
22. M.C. Fu and K.J. Healy, "Techniques for Simulation Optimization: An Experimental Study on an (s,S) Inventory System," *IIE Transactions*, Vol.29, No.3, 191–199, 1997.
23. M.C. Fu and S.D. Hill, "Optimization of Discrete Event Systems via Simultaneous Perturbation Stochastic Approximation," *IIE Transactions*, Vol.29, No.3, 233–243, 1997 (received 1998 IIE Transactions on Operations Engineering Best Paper Award).
24. A. Díaz and M.C. Fu, "Models for Multi-Echelon Repairable Item Inventory Systems with Limited Repair Capacity," *European Journal of Operational Research*, Vol.97, No.3, 480–492, 1997.
25. M.C. Fu, J.W. Herrmann, and M. Narayanaswamy, "Setting Thresholds for Periodic Order Release," *Journal of Intelligent Manufacturing*, Vol.8, No.5, 369–383, 1997.
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27. M.C. Fu and J.Q. Hu, "Efficient Design and Sensitivity Analysis of Control Charts Using Monte Carlo Simulation," *Management Science*, Vol.45, No.3, 395–413, 1999.
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39. M.C. Fu, "Optimization for Simulation: Theory vs. Practice" (Feature Article), *INFORMS Journal on Computing*, Vol.14, No.3, 192–215, 2002.
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44. R. Wu and M.C. Fu, "Optimal Exercise Policies and Simulation-based Valuation for American-Asian Options," *Operations Research*, Vol.51, No.1, 2003, 52–66.
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61. M.C. Fu, "What You Should Know About Simulation and Derivatives" (Cover Story), *Naval Research Logistics*, Vol.55, No.8, 723–736, 2008.
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63. M.C. Fu, S. Lele, and T. Vossen, "Conditional Monte Carlo Gradient Estimation in Economic Design of Control Limits," *Production and Operations Management*, Vol. 18, No. 1, 60–77, 2009.
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89. L. Lei, Y. Peng, M.C. Fu, and J.Q. Hu, "Applications of Generalized Likelihood Ratio Method to Distribution Sensitivities and Steady-state Simulation," *Discrete Event Dynamic Systems: Theory and Applications*, published online May 17, 2017, 17 pages.
90. Y. Peng, M.C. Fu, J.Q. Hu, and B. Heidergott, "A New Unbiased Stochastic Derivative Estimator for Discontinuous Sample Performances with Structural Parameters," *Operations Research*, accepted, 2017.
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## Books

1. M.C. Fu and J.Q. Hu, *Conditional Monte Carlo: Gradient Estimation and Optimization Applications*, Kluwer Academic Publishers, 1997 (research monograph: 416 pages; received 1998 INFORMS College on Simulation Outstanding Publication Award).
2. H.S. Chang, M.C. Fu, J. Hu, and S.I. Marcus, *Simulation-based Algorithms for Markov Decision Processes*, Springer-Verlag, 2007 (research monograph).

3. H.S. Chang, J. Hu, M.C. Fu, and S.I. Marcus, *Simulation-based Algorithms for Markov Decision Processes*, Springer-Verlag, 2nd edition 2013.

## Books Edited

1. F.B. Alt, M.C. Fu and B.L. Golden, editors, *Perspectives in Operations Research: Papers in Honor of Saul Gass' 80th Birthday*, Springer, 2006.
2. M.C. Fu, R.A. Jarrow, J.-Y. Yen, and R.J. Elliott, editors, *Advances in Mathematical Finance*, Birkhäuser, 2007.
3. S.I. Gass and M.C. Fu, editors, *Encyclopedia of Operations Research and Management Science*, 3rd edition (2 volumes), Springer, 2013.
4. M.C. Fu, editor, *Handbook on Simulation Optimization*, Springer, 2015.

## Book Chapters

1. S. Bhatnagar, M.C. Fu, and S.I. Marcus, "Two Timescale SPSA Algorithms for Rate-Based ABR Flow Control," *System Theory: Modeling, Analysis, and Control*, T. Djaferis and I. Schick, editors, Kluwer Academic Publishers, 367–378, 1999.
2. Y. He, M.C. Fu, and S.I. Marcus, "A Simulation-Based Policy Iteration Algorithm for Average Cost Unichain Markov Decision Processes," *Computing Tools for Modeling, Optimization, and Simulation: Interfaces in Computer Science and Operations Research*, Manuel Laguna and José Luis González Velarde, editors, Kluwer Academic Publishers, 161–182, 2000.
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6. M.C. Fu, "Gradient Estimation," Chapter 19 in *Handbooks in Operations Research and Management Science: Simulation*, S.G. Henderson and B.L. Nelson, editors, Elsevier, 575–616, 2006.
7. M.C. Fu, "Sensitivity Analysis in Monte Carlo Simulation of Stochastic Activity Networks," *Perspectives in Operations Research: Papers in Honor of Saul Gass' 80th Birthday*, F.B. Alt, M.C. Fu and B.L. Golden, editors, Springer, 351–366, 2006.
8. M.C. Fu, "Variance-Gamma and Monte Carlo," *Advances in Mathematical Finance*, M.C. Fu, R.A. Jarrow, J.-Y. Yen, and R.J. Elliott, editors, Birkhäuser, 21–35, 2007.

9. C.H. Chen, M.C. Fu, and L. Shi, "Simulation and Optimization," *Tutorials in Operations Research*, Z.L. Chen and S. Raghavan, editors, INFORMS, 247–260, 2008.
10. J. Hu, Y. Wang, E. Zhou, M.C. Fu, and S.I. Marcus, "A Survey of Some Model-Based Methods in Global Optimization, in *Optimization, Control, and Applications of Stochastic Systems*, 157–179, 2012.
11. M.C. Fu, W. Gong, J.Q. Hu, and S. Li, "Smoothed Perturbation Analysis: A Retrospective and Prospective Look," *Stochastic Simulation Optimization for Discrete Event Systems – Perturbation Analysis, Ordinal Optimization, and Beyond*, Chun-Hung Chen, Qing-Shan Jia, and Loo Hay Lee, editors, World Scientific, 25–41, 2013.
12. M.C. Fu, "Approximate Dynamic Programming," Vol.1 of *Encyclopedia of Operations Research and Management Science*, 3rd edition, S.I. Gass and M.C. Fu, editors, Springer, 73–77, 2013.
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14. M.C. Fu, "Simulation Optimization," Vol.2 of *Encyclopedia of Operations Research and Management Science*, 3rd edition, S.I. Gass and M.C. Fu, editors, Springer, 1418–1423, 2013.
15. M.C. Fu and D Gross, "Simulation of Stochastic Discrete-Event Systems," Vol.2 of *Encyclopedia of Operations Research and Management Science*, 3rd edition, S.I. Gass and M.C. Fu, editors, Springer, 1410–1418, 2013.
16. M.C. Fu, "Overview of the Handbook," Chapter 1 of *Handbook on Simulation Optimization*, M.C. Fu, editor, Springer, 2015.
17. M.C. Fu, "Stochastic Gradient Estimation," Chapter 5 of *Handbook on Simulation Optimization*, M.C. Fu, editor, Springer, 2015.
18. M. Chau and M.C. Fu, "An Overview of Stochastic Approximation," Chapter 6 of *Handbook on Simulation Optimization*, M.C. Fu, editor, Springer, 2015.
19. M.C. Fu, "Markov Decision Processes, AlphaGo, and Monte Carlo Tree Search: Back to the Future," *Tutorials in Operations Research*, INFORMS, forthcoming, 2017.

## Papers in Conference Proceedings (Refereed or Invited)

1. R. Gupta, M. Fu, W. Baker, and R. Edwards, "A Broadband MMIC Dual-Gate FET Switch Module with On-Chip TTL Control Interface," *1987 European Microwave Conference Proceedings*, 243–248.
2. M.C. Fu and Y.C. Ho, "Using Perturbation Analysis for Gradient Estimation, Averaging, and Updating in a Stochastic Approximation Algorithm," *Proceedings of the 1988 Winter Simulation Conference*, 509–517, 1988.
3. M.C. Fu and J.Q. Hu, "Bias Properties of Infinitesimal Perturbation Analysis for Multi-Server Queues," *Proceedings of the 1990 Winter Simulation Conference*, 377–381, 1990.



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6. M.C. Fu and K.J. Healy, "Simulation Optimization of (s,S) Inventory Systems," *Proceedings of the 1992 Winter Simulation Conference*, 506–514, 1992.
7. M.C. Fu, J.Q. Hu and L. Shi, "Likelihood Ratio Methods via Conditional Monte Carlo and Splitting," *Proceedings of the Allerton Conference on Communication, Computing and Control*, 958–967, 1993.
8. M.C. Fu, J.Q. Hu and L. Shi, "An Application of Perturbation Analysis to Replacement Problems in Maintenance," *Proceedings of the 1993 Winter Simulation Conference*, 329–337, 1993.
9. M.C. Fu, "A Tutorial Overview of Optimization via Discrete-Event Simulation," *Proceedings of the 11th Conference on Analysis and Optimization of Systems: Discrete Event Systems*, 409–418, 1994 (invited talk).
10. S.D. Hill and M.C. Fu, "Simulation Optimization via Simultaneous Perturbation Stochastic Approximation," *Proceedings of the 1994 Winter Simulation Conference*, 1461–1464, 1994.
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14. S.D. Hill and M.C. Fu, "Transfer Optimization via Simultaneous Perturbation Stochastic Approximation," *Proceedings of the 1995 Winter Simulation Conference*, 242–249, 1995.
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