Topics in Markov Chain Theory and Simulation Optimisation

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BIBLIOGRAPHY

[1] K. Abbas and D. Aïssani. Structural perturbation analysis of a single server queue with breakdowns. *Stochastic Models*, 26(1):78–97, 2010.

[2] K. Abbas, J. Berkhout, and B. F. Heidergott. A critical account of perturbation analysis of Markovian systems. *To appear in Journal Markov Processes and Related Fields*, 2016.

[3] M. Abramowitz and I. A. Stegun. *Handbook of mathematical functions with formulas, graphs and mathematical tables*. Dower Publications Inc., New York, 1992.

[4] I. Adan and G. Weiss. A two-node Jackson network with infinite supply of work. *Probability in the Engineering and Informational Sciences*, 19(2):191–212, 2005.

[5] P. Agharkar, R. Patel, and F. Bullo. Robotic surveillance and Markov chains with minimal first passage time. In *53rd IEEE Conference on Decision and Control*, pages 6603–6608. IEEE, dec 2014.

[6] D. Aïssani and N. V. Kartashov. Ergodicity and stability of Markov chains with respect to operator topology in the space of transition kernels. *Doklady Akademii Nauk Ukrainskoi S.S.R.*, 11:3–5, 1983.

[7] D. Aïssani and N. V. Kartashov. Strong stability of the imbedded Markov chain in an $M/G/1$ system. *International Journal Theory of Probability and Mathematical Statistics, American Mathematical Society*, 29:1–5, 1984.

[8] P. Alquier, N. Friel, R. Everitt, and A. Boland. Noisy Monte Carlo: convergence of Markov chains with approximate transition kernels. *Statistics and Computing*, 26(1-2):29–47, dec 2014.

[9] M. H. Alrefaei and S. Andradóttir. A simulated annealing algorithm with constant temperature for discrete stochastic optimization. *Management Science*, 45(5):748–764, 1999.

[10] M. H. Alrefaei and S. Andradóttir. A modification of the stochastic ruler method for discrete stochastic optimization. *European Journal of Operational Research*, 133(1):160–182, 2001.

[11] E. Altman, K. E. Avrachenkov, and R. Núñez-Queija. Perturbation analysis for denumerable Markov chains with application to queueing models. *Advances in Applied Probability*, 36:839–853, 2004.

[12] S. Andradóttir. A method for discrete stochastic optimization. *Management Science*, 41(12):1946–1961, 1995.

[13] S. Andradóttir. A global search method for discrete stochastic optimization. *SIAM Journal on Optimization*, 6(2):513–530, 1996.

[14] S. Andradóttir. Simulation Optimization. In J. Banks, editor, *Handbook of Simulation: Principles, Methodology, Advances, Applications, and Practice*, chapter 9. John Wiley & Sons, New York, 1998.

[15] C. Andrieu and G. O. Roberts. The pseudo-marginal approach for efficient Monte Carlo computations. *The Annals of Statistics*, 37(2):697–725, 2009.

[16] V. V. Anisimov. Estimates for the deviations of the transition characteristics of nonhomogeneous Markov processes. *Ukrainian Math. J.*, 40:588–592, 1988.

[17] B. Avi-Itzhak and P. Naor. Some queueing problems with the service station subject to breakdown. *Operations Research*, 11(3):303–320, 1963.

[18] K. Avrachenkov, J. A. Filar, and P. G. Howlett. *Analytic Perturbation Theory and Its Applications*. SIAM, 2013.

[19] K. Avrachenkov and M. Haviv. The first Laurent series coefficients for singularly perturbed stochastic matrices. *Linear Algebra and its Applications*, 386:242–259, 2004.

[20] K. Avrachenkov and N. Litvak. The effect of new links on Google Pagerank. *Stochastic Models*, 22(2):319–331, 2006.

[21] K. Avrachenkov, N. Litvak, V. Medyanikov, and M. Sokol. Alpha current flow betweenness centrality. In *WAW 2013*, volume 8305 LNCS, pages 106–117, 2013.

[22] K. Avrachenkov, N. Litvak, and K. S. Pham. A singular perturbation approach for choosing the PageRank damping factor. *Internet Mathematics*, 5(1-2):47–69, 2008.

[23] F. Baccelli and T. Znati. Queueing systems with breakdowns in data base modeling. In *Proceedings of Performance 81 (8 th IFIP International Symposium on Comp. Perf. Model.)*, pages 213–232, Amsterdam, 1981.

[24] A. Barabási and R. Albert. Emergence of scaling in random networks. *Science*, 286(5439):509–512, oct 1999.

[25] R. Barton and B. L. Nelson. A framework for input uncertainty analysis. In *Proceedings of the 2010 Winter Simulation Conference (B. Johansson, S. Jain, J. Montoya-Torres, J. Hugan, and E. Yucesan, eds.)*, pages 1189–1198, 2010.

[26] F. Baskett, K. M. Chandy, R. R. Muntz, and F. G. Palacios. Open, closed, and mixed networks of queues with different classes of customers. *Journal of the ACM*, 22(2):248–260, 1975.

[27] P. Berkhin. A survey on PageRank computing. *Internet Mathematics*, 2(1):73–120, jan 2005.

[28] J. Berkhout. An accelerated stopping rule for the Nested Partition Hybrid Algorithm for discrete stochastic optimization. *Discrete Event Dynamic Systems*, 25(3):441–452, 2014.

[29] J. Berkhout. Onzekerheid die ertoe doet: een aanzet tot integratie van operationele research en econometrie. *SECTOR*, 1:18–20, 2014.

[30] J. Berkhout. Google's PageRank algorithm for ranking nodes in general networks. In *Proc. 13th International Workshop on Discrete Event Systems (WODES 2016)*, pages 153–158, 2016.

[31] J. Berkhout and B. F. Heidergott. A series expansion approach to risk analysis of an inventory system with sourcing. In *Proc. 12th International Workshop on Discrete Event Systems (WODES 2014)*, volume 12, pages 510–515, 2014.

[32] J. Berkhout and B. F. Heidergott. Efficient algorithm for computing the ergodic projector of Markov multi-chains. *Procedia Computer Science*, 51:1818–1827, 2015.

[33] J. Berkhout and B. F. Heidergott. Analysis of Markov influence graphs. *Submitted for Publication*, 2016.

[34] J. Berkhout and B. F. Heidergott. Sociale netwerk analyse met Markov ketens. *SECTOR*, 2:31–34, 2016.

[35] J. Berkhout and B. F. Heidergott. The Jump Start Power Method: a new approach for computing the ergodic projector of a finite Markov chain. *Submitted for Publication*, 2016.

[36] J. Blake, A. Reibman, and K. Trivedi. Sensitivity analysis of reliability and performability measures for multiprocessor systems. In *ACM SIGMETRICS Conf. on Measurement and Modeling of Computer Sys.*, pages 177–186, 1988.

[37] P. Boldi, M. Santini, and S. Vigna. PageRank: functional dependencies. *ACM Transactions on Information Systems*, 27(4):1–23, nov 2009.

[38] P. Boldi and S. Vigna. Axioms for centrality. *Internet Mathematics*, 10(3-4):222–262, 2014.

[39] V. S. Borkar, V. Ejov, J. A. Filar, and G. T. Nguyen. *Hamiltonian Cycle Problem and Markov Chains*. Springer-Verlag New York, 2012.

[40] L. Bouallouche-Medjkoune and D. Aïssani. Performance analysis approximation in a queueing system of type $M/G/1$. *Mathematical Methods of Operations Research*, 63(2):341–356, 2006.

[41] L. Boukir, L. Bouallouche-Medjkoune, and D. Aïssani. Strong stability of the batch arrival queueing systems. *Stochastic Analysis and Applications*, 28(1):8–25, 2010.

[42] J. Branke, S. E. Chick, and C. Schmidt. Selecting a selection procedure. *Management Science*, 53(12):1916–1932, 2007.

[43] M. Bressan and E. Peserico. Choose the damping, choose the ranking? *Journal of Discrete Algorithms*, 8(2):199–213, 2010.

[44] S. Brin and L. Page. The anatomy of a large-scale hypertextual Web search engine. *Computer Networks and ISDN Systems*, 30(1-7):107–117, 1998.

[45] A. Broder, R. Kumar, F. Maghoul, P. Raghavan, S. Rajagopalan, R. Stata, A. Tomkins, and J. Wiener. Graph structure in the Web. *Computer Networks*, 33(1):309–320, 2000.

[46] J. Cao and K. Cheng. Analysis of $M/G/1$ queueing system with repairable service station. *Acta Math. Appl. Sinica*, 5:113–127, 1982.

[47] X.-R. Cao. The Maclaurin series for performance functions of Markov chains. *Advances in Applied Probability*, 30(3):676–692, sep 1998.

[48] H. Caswell. Sensitivity analysis of discrete Markov chains via matrix calculus. *Linear Algebra and its Applications*, 438(4):1727–1745, 2013.

[49] M. Catral, S. Kirkland, M. Neumann, and N.-S. Sze. The Kemeny constant for finite homogeneous ergodic Markov chains. *Journal of Scientific Computing*, 45(1-3):151–166, jul 2010.

[50] M. D. Chekroun, J. D. Neelin, D. Kondrashov, J. C. McWilliams, and M. Ghil. Rough parameter dependence in climate models and the role of Ruelle-Pollicott resonances. *Proceedings of the National Academy of Sciences of the United States of America*, 111(5):1684–1690, 2014.

[51] C.-H. Chen. A lower bound for the correct subset-selection probability and its application to discrete-event system simulations. *Automatic Control, IEEE Transactions on*, 41(8):1227–1231, 1996.

[52] C.-H. Chen and L. H. Lee. *Stochastic Simulation Optimization: An Optimal Computing Budget Allocation*, volume 1. World Scientific Publishing, 2010.

[53] C.-H. Chen, J. Lin, E. Yücesan, and S. E. Chick. Simulation budget allocation for further enhancing the efficiency of ordinal optimization. *Discrete Event Dynamic Systems: Theory and Applications*, 10(3):251–270, 2000.

[54] H. Chen and D. D. Yao. *Fundamentals of Queueing Networks*. Springer, Berlin, 2001.

[55] H.-C. Chen, C.-H. Chen, and E. Yücesan. Computing efforts allocation for ordinal optimization and discrete event simulation. *IEEE Transactions on Automatic Control*, 45(5):960–964, 2000.

[56] N. Chen, N. Litvak, and M. Olvera-Cravioto. Ranking algorithms on directed configuration networks, arXiv:1409.7443v2. Technical report, 2014.

[57] G. E. Cho and C. D. Meyer. Comparison of perturbation bounds for the stationary distribution of a Markov chain. *Linear Algebra and its Applications*, 335(1-3):137–150, 2001.

[58] F. Chung. The heat kernel as the pagerank of a graph. *Proceedings of the National Academy of Sciences*, 104(50):19735–19740, dec 2007.

[59] D. N. Clark. *Dictionary of Analysis, Calculus, and Differential Equations (Comprehensive Dictionary of Mathematics)*. CRC Press, 1999.

[60] G. Como and F. Fagnani. Robustness of large-scale stochastic matrices to localized perturbations. *IEEE Transactions on Network Science and Engineering*, 2(2):53–64, apr 2015.

[61] P. Coolen-Schrijner and E. A. van Doorn. The deviation matrix of a continuous-time Markov chain. *Probability in the Engineering and Informational Sciences*, 16(3):351–366, 2002.

[62] E. Crisostomi, S. Kirkland, and R. Shorten. A Google-like model of road network dynamics and its application to regulation and control. *International Journal of Control*, 84(3):633–651, 2011.

[63] M. H. DeGroot. Reaching a consensus. *Journal of the American Statistical Association*, 69(345):118–121, 1974.

[64] J. E. Dettman. *Applied Complex Variables*. Dover Publications, New York, 2012.

[65] D. Dominici. Nested derivatives: a simple method for computing series expansions of inverse functions. *International Journal of Mathematics and Mathematical Sciences*, 2003(58):3699–3715, 2003.

[66] B. T. Doshi. Single Server Queues with Vacations. In H. Takagi, editor, *Stochastic Analysis of Computer and Communication Systems*, chapter 1, pages 217–265. North-Holland, Amsterdam, 1990.

[67] R. M. D'Souza and J. Nagler. Anomalous critical and supercritical phenomena in explosive percolation. *Nature Physics*, 11(7):531–538, 2015.

[68] A. Ferdinand. A statistical mechanical approach to systems analysis. *IBM Journal of Research and Development*, 14(5):539–547, 1970.

[69] B. L. Fox and D. M. Landi. An algorithm for identifying the ergodic subchains and transient states of a stochastic matrix. *Communications of the ACM*, 11(9):619–621, sep 1968.

[70] M. Franceschet. PageRank: standing on the shoulders of giants. *Communications of the ACM*, 54(6):92–101, 2011.

[71] H.-H. Fu, D. K. J. Lin, and H.-T. Tsai. Damping factor in Google page ranking. *Applied Stochastic Models in Business and Industry*, 22(5-6):431–444, sep 2006.

[72] M. C. Fu. Optimization for simulation: theory vs. practice. *INFORMS Journal on Computing*, 14(3):192–215, 2002.

[73] M. C. Fu. *Handbook of Simulation Optimization (International Series in Operations Research & Management Science)*. Springer, 2015.

[74] M. C. Fu, F. W. Glover, and J. April. Simulation optimization: a review, new developments, and applications. In *Proceedings of the 2005 Winter Simulation Conference*, pages 83–85. IEEE, 2005.

[75] D. F. Gleich. PageRank beyond the web. *SIAM Review*, 57(3):321–363, 2015.

[76] P. W. Glynn. Some asymptotic formulas for Markov chains with applications to simulation. *Journal of Statistical Computation and Simulation*, 19(2):97–112, 1984.

[77] B. Golub and M. O. Jackson. Naïve learning in social networks and the wisdom of crowds. *American Economic Journal Microeconomics*, 2(1):112–149, 2010.

[78] W.-B. Gong, Y.-C. Ho, and W. Zhai. Stochastic comparison algorithm for discrete optimization with estimation. *SIAM Journal on Optimization*, 10(2):384–404, 2000.

[79] J. B. Goodman and W. A. Massey. The non-ergodic Jackson network. *Journal of Applied Probability*, 21(4):860–869, 1984.

[80] P. Grindrod. Range-dependent random graphs and their application to modeling large small-world Proteome datasets. *Physical Review E*, 66(6):066702, dec 2002.

[81] Y. Guo. Stability of generalized Jackson networks with infinite supply of work. *Journal of System Sciences and Complexity*, 21:283–295, 2008.

[82] Y. Guo, E. Lefeber, T. Nazarathy, G. Weis, and H. Zhang. Stability of multi-class queueing networks with infinite virtual queues. *Queueing Systems*, pages 1–34, 2013.

[83] D. J. Hartfiel and C. D. Meyer. On the structure of stochastic matrices with a subdominant eigenvalue near 1. *Linear Algebra and its Applications*, 272(1-3):172–193, 1998.

[84] R. Hassin and M. Haviv. Mean passage times and nearly uncoupled Markov chains. *SIAM Journal on Discrete Mathematics*, 5(3):386–397, 1992.

[85] T. H. Haveliwala. Topic-sensitive PageRank. In *Proceedings of the 11th international conference on World Wide Web*, pages 517–526, 2002.

[86] B. Haverkort. *Performance Evaluation of Computer-Communication Systems*. Wiley, 1998.

[87] B. Haverkort, R. Marie, G. Rubino, and K. Trivedid. *Performability Modelling: Techniques and Tools*. Wiley, 2001.

[88] B. Haverkort and A. Meeuwissen. Sensitivity and uncertainty analysis in performance modelling. In *Proceedings 11th Symposium on Reliable Distributed Systems*, pages 93–102. IEEE Computer Society Press, 1992.

[89] M. Haviv and U. Rothblim. Bounds on distances between eigenvectors. *Linear Algebra and its Applications*, 15:101–118, 1984.

[90] M. Haviv and L. van der Heyden. Perturbation bounds for the stationary probabilities of a finite Markov chain. *Advances in Applied Probability*, 16(4):804–818, 1984.

[91] B. F. Heidergott and A. Hordijk. Taylor expansions for stationary Markov chains. *Advances in Applied Probability*, 35(4):1046–1070, 2003.

[92] B. F. Heidergott, A. Hordijk, and N. Leder. Series expansions for continuous-time Markov processes. *Operations Research*, 58(3):756–767, 2010.

[93] B. F. Heidergott, A. Hordijk, and M. van Uitert. Series expansions for finite-state Markov chains. *Probability in the Engineering and Informational Sciences*, 21(3):381–400, aug 2007.

[94] S. Henderson. Input model uncertainty: why do we care and what should we do about it? In *Proceedings of the 2003 Winter Simulation Conference (S. Chick, P. J. Sanchez, D. Ferrin, and D. J. Morrice, eds.)*, pages 90–100, 2003.

[95] Y.-C. Ho, R. S. Sreenivas, and P. Vakili. Ordinal optimization of DEDS. *Discrete Event Dynamic Systems: Theory and Applications*, 2(1):61–88, 1992.

[96] Y.-C. Ho, Q.-C. Zhao, and J. Q. Shan. *Ordinal Optimization: Soft Optimization for Hard Problems*. Springer, 2007.

[97] L. J. Hong and B. L. Nelson. Discrete optimization via simulation using COMPASS. *Operations Research*, 54(1):115–129, 2006.

[98] L. J. Hong and B. L. Nelson. A brief introduction to optimization via simulation. In *Proceedings of the 2009 Winter Simulation Conference*, pages 75–85. Winter Simulation Conference, 2009.

[99] A. Hordijk and F. M. Spieksma. A New Formula for the Deviation Matrix. In *Probability, Statistics and Optimization*, chapter 36. Wiley, 1994.

[100] J. Hu, M. C. Fu, and S. I. Marcus. A model reference adaptive search method for global optimization. *Operations Research*, 55(3):549–568, 2007.

[101] J. J. Hunter. Generalized inverses and their application to applied probability problems. *Linear Algebra and Its Applications*, 45:157–198, 1982.

[102] J. J. Hunter. Stationary distributions and mean first passage times of perturbed Markov chains. *Linear Algebra and its Applications*, 410:217–243, 2005.

[103] J. J. Hunter. The role of Kemeny's constant in properties of Markov chains. *Communications in Statistics - Theory and Methods*, 43(7):1309–1321, mar 2014.

[104] O. Ibe. *Markov Processes for Stochastic Modeling*. Newnes, 2013.

[105] I. C. F. Ipsen and C. D. Meyer. Uniform stability of Markov chains. *SIAM Journal on Matrix Analysis and Applications*, 15(4):1061–1074, 1994.

[106] I. C. F. Ipsen and T. M. Selee. Ergodicity coefficients defined by vector norms. *SIAM Journal on Matrix Analysis and Applications*, 32(1):153–200, 2011.

[107] J. R. Jackson. Networks of waiting lines. *Operations Research*, 5(4):518–521, 1957.

[108] J. R. Jackson. Jobshop - like queueing systems. *Management Science*, 10(1):131–142, 1963.

[109] X. Jungong and G. Weiguo. Blockwise perturbation theory for Markov chains. *SIAM Journal on Matrix Analysis and Applications*, 20:270–278, 1998.

[110] N. V. Kartashov. Strongly stable Markov chains. *Journal of Soviet Mathematics*, 34:1493–1498, 1986.

[111] N. V. Kartashov. *Strong Stable Markov Chains*. TBIMC Scientific Publishers, VSP, 1996.

[112] F. P. Kelly. Networks of queues with customers of different types. *Journal of Applied Probability*, 12(3):542–554, 1975.

[113] F. P. Kelly. *Reversibility and Stochastic Networks*. Wiley, Chichester, 1979.

[114] J. G. Kemeny and J. L. Snell. Finite continuous time Markov chains. *Theory of Probability & Its Applications*, 6(1):101–105, jan 1961.

[115] J. G. Kemeny and J. L. Snell. *Finite Markov chains: With a New Appendix "Generalization of a Fundamental Matrix"*. Springer New York, New York, 1976.

[116] J. G. Kemeny, J. L. Snell, and A. W. Knapp. *Denumerable Markov Chains*. Springer-Verlag New York, 1976.

[117] R. Khashaminkii, G. Yin, and Q. Zhang. Asymptotic expansions of singularly perturbed systems involving rapidly fluctuating Markov chains. *SIAM Journal on Applied Mathematics*, 56(1):277–293, 1996.

[118] M. Kijima. *Markov Processes for Stochastic Modeling*. Chapman & Hall, London, 1997.

[119] S. Kirkland. On a question concerning condition numbers for Markov chains. *SIAM Journal on Matrix Analysis and Applications*, 23(4):1109–1119, 2002.

[120] S. Kirkland. Fastest expected time to mixing for a Markov chain on a directed graph. *Linear Algebra and its Applications*, 433(11-12):1988–1996, dec 2010.

[121] S. Kirkland. On the Kemeny constant and stationary distribution vector for a Markov chain. *Electronic Journal of Linear Algebra*, 27(1):354–372, 2014.

[122] S. Kirkland, M. Neumann, and N-S. Sze. On optimal condition numbers for Markov chains. *Numerische Mathematik*, 110(4):521–537, 2008.

[123] J. M. Kleinberg. Navigation in a small world. *Nature*, 406(6798):845, aug 2000.

[124] I. Kontoyiannis and S. P. Meyn. Spectral theory and limit theorems for geometrically ergodic Markov processes. *The Annals of Applied Probability*, 13(1):304–362, 2013.

[125] G. M. Koole and F. M. Spieksma. On deviation matrices for birth-death processes. *Probability in the Engineering and Informational Sciences*, 15(2):239–258, 2001.

[126] A. Kopzon, Y. Nazarathy, and G. Weiss. A push-pull network with infinite supply of work. *Queueing Systems*, 65(1-2):75–111, 2009.

[127] A. Kopzon and G. Weiss. A push-pull queueing system. *Operations Research Letters*, 30(6):351–359, 2002.

[128] S. Kullback. *Information Theory and Statistics*. Wiley, 1959.

[129] A. N. Langville and C. D. Meyer. A survey of eigenvector methods for web information retrieval. *SIAM Review*, 47(1):135–161, jan 2005.

[130] A. N. Langville and C. D. Meyer. Updating Markov chains with an eye on Google's PageRank. *SIAM Journal on Matrix Analysis and Applications*, 27(4):968–987, jan 2006.

[131] A. N. Langville and C. D. Meyer. *Google's PageRank and Beyond: The Science of Search Engine Rankings*. Princeton University Press, 2011.

[132] A. N. Langville and C. D. Meyer. Do the math: why no ranking system is no. 1. *Scientific American*, 307(1), 2012.

[133] O. Lekadir and D. Aïssani. Error bounds on practical approximation for two tandem queue with blocking and non-preemptive priority. *Computers and Mathematics with Applications*, 61(7):1810–1822, 2011.

[134] J. Leskovec and A. Krevl. SNAP Datasets: Stanford Large Network Dataset Collection, Webpage: https://snap.stanford.edu/data/wiki-Vote.html, 2014.

[135] M. Levene and G. Loizou. Kemeny's constant and the random surfer. *The American Mathematical Monthly*, 109(8):741–745, 2002.

[136] Y. Levy and U. Yechiali. Utilization of idle time in an $M/G/1$ queueing system. *Management Science*, 22(2):202–211, 1975.

[137] W. Li, D. Shi, and X. Chao. Reliability analysis of $M/G/1$ queueing systems with server breakdowns and vacations. *Journal of Applied Probability*, 34(2):546–555, 1997.

[138] J. Lisman and M. van Zuylen. Note on the generation of most probable frequency distributions. *Statistica Neerlandica*, 26(1):19–23, 1972.

[139] N. Litvak and V. Ejov. Markov chains and optimality of the Hamiltonian cycle. *Mathematics of Operations Research*, 34(1):71–82, 2009.

[140] Y. Liu. Perturbation bounds for the stationary distribution of Markov chains. *SIAM Journal of Matrix Analysis and Applications*, 33(4):1057–1074, 2012.

[141] M. Mcpherson, L. Smith-lovin, and J. M. Cook. Birds of a feather: homophily in social networks. *Annual Review of Sociology*, 27(2001):415–444, 2001.

[142] B. Melamed. On Poisson traffic processes in discrete-state Markovian systems with applications to queueing theory. *Advances in Applied Probability*, 11(1):218–239, 1979.

[143] C. D. Meyer. Limits and the index of a square matrix. *SIAM Journal on Applied Mathematics*, 26(3):469–478, 1974.

[144] C. D. Meyer. The role of the group generalized inverse in the theory of finite Markov chains. *SIAM Review*, 17(3):443–464, jul 1975.

[145] C. D. Meyer. The condition of a finite Markov chain and perturbation bounds for the limiting probabilities. *SIAM Journal on Algebraic Discrete Methods*, 1(3):273–283, jul 1980.

[146] C. D. Meyer. Analysis of finite Markov chains by group inversion techniques. *in Recent Applications of Generalized Inverses, Res. Notes in Math. 66, S. L. Campbell, ed., Pitman, Boston, London,*, pages 50–81, 1982.

[147] C. D. Meyer. Analysis of Finite Markov chains by Group Inversion Techniques. Recent Applications of Generalized Inverses. In S.L. Campbell, editor, *Research Notes in Mathematics*, pages 50–81. Pitman, Boston, vol. 66 edition, 1982.

[148] C. D. Meyer. Stochastic complementation, uncoupling Markov chains, and the theory of nearly reducible systems. *SIAM Review*, 31(2):240–272, jun 1989.

[149] C. D. Meyer, S. Race, and K. Valakuzhy. Determining the number of clusters via iterative consensus clustering. In *Proceedings of the 2013 SIAM International Conference on Data Mining*, pages 94–102, 2013.

[150] A. Y. Mitrophanov. Sensitivity and convergence of uniformly ergodic Markov chains. *Journal of Applied Probability*, 42(4):1003–1014, 2005.

[151] A. Y. Mitrophanov, A. Lomsadze, and M. Borodovsky. Sensitivity of hidden Markov models. *Journal of Applied Probability*, 42(3):632–642, 2005.

[152] J. L. Morrison, R. Breitling, D. J. Higham, and D. R. Gilbert. A lock-and-key model for protein-protein interactions. *Bioinformatics (Oxford, England)*, 22(16):2012–9, aug 2006.

[153] Z. Mouhoubi and D. Aïssani. New perturbation bounds for denumerable chains. *Linear Algebra and its Applications*, 432(7):1627–1649, 2010.

[154] J. Mylosz. *Local Stabilization of Non-Ergodic Jackson Networks with Unreliable Nodes.* Phd thesis, University of Hamburg, 2013.

[155] J. Mylosz and H. Daduna. On the behavior of stable subnetworks in non-ergodic networks with unreliable nodes. *Computer Networks*, 53(8):1249–1263, 2009.

[156] M. Neumann and J. Xu. Improved bounds for a condition number of Markov chains. *Linear Algebra and its Applications*, 386:225–241, 2004.

[157] M. Newman. *Networks: An Introduction.* Oxford University Press, 2010.

[158] A. O'Cinneide. Entrywise perturbation theory and error analysis for Markov chains. *Numerische Mathematik*, 65(1):109–120, 1993.

[159] R. Pal, A. Datta, and E. R. Dougherty. Robust intervention in probabilistic boolean networks. *IEEE Transactions on Signal Processing*, 56(3):1280–1294, mar 2008.

[160] S. Park and A. Bera. Maximum entropy autoregressive conditional heteroskedasticity model. *Journal of Econometrics*, pages 219–230, 2009.

[161] M. L. Puterman. *Markov Decision Processes: Discrete Stochastic Dynamic Programming.* John Wiley & Sons, Inc., New York, 1994.

[162] B. Rabta. Perturbation results for comparison of Markov models. *Journal of Statistics Applications & Probability*, 2(1):27–31, 2013.

[163] A. Ramesh and K. Trivedi. On the sensitivity of transient solutions of Markov models. In *ACM SIGMETRICS conf. on Measurement & Modeling of Comp. Sys.*, pages 21: 122–134, 1993.

[164] N. Sato and K. Trivedi. Stochastic modeling of composite web services for closed-form analysis of their performance and reliability bottlenecks. In *5th. Intl. Conf. on Service Oriented Computing, ICSOC*, pages 107–118, 2007.

[165] C. Sauer and H. Daduna. Availability formulas and performance measures for separable degradable networks. *Economic Quality Control*, 18(2):165–194, 2003.

[166] P. J. Schweitzer. Perturbation theory and finite Markov chains. *Journal of Applied Probability*, 5(2):401–413, 1968.

[167] E. Seneta. Sensitivity Analysis, Ergodicity Coefficients, and Rank-One Updates of Finite Markov Chains. In W. J. Stewart, editor, *Numerical Solution of Markov Chains, Probability: Pure and Applied*, pages 121–129. Marcel Dekker, New York, 1991.

[168] R. F. Serfozo. *Basics of Applied Stochastic Processes.* Springer, Berlin, Heidelberg, 2009.

[169] L. Shi. A new algorithm for stochastic discrete resource allocation optimization. *Discrete Event Dynamic Systems*, 10(3):271–294, 2000.

[170] L. Shi and S. Ólafsson. Nested partitions method for global optimization. *Operations Research*, 48(3):390–407, 2000.

[171] J. Sommer, J. Berkhout, H. Daduna, and B. F. Heidergott. Robust analysis of single server networks with infinite supply and unreliable nodes. *Submitted for Publication*, 2016.

[172] J. Sommer, H. Daduna, and B. F. Heidergott. Non-ergodic Jackson networks with infinite supply – local stabilization and local equilibrium analysis. *Preprint 2014-04, Schwerpunkt Mathematische Statistik und Stochastische Prozesse, Fachbereich Mathematik der Universität Hamburg*, 2014.

[173] W. J. Stewart. *Introduction to the Numerical Solution of Markov Chains*. Princeton University Press, 1994.

[174] S. Stidham. $L = \lambda \cdot W$: A discounted analogue and a new proof. *Operations Research*, 20:1115–1126, 1972.

[175] S. Stidham. A last word on $L = \lambda \cdot W$. *Operations Research*, 22:417–421, 1974.

[176] R. Syski. Ergodic potential. *Stochastic Processes*, 16:351–366, 2002.

[177] O. Szehr and M. M. Wolf. Perturbation bounds for quantum Markov processes and their fixed points. *Journal of Mathematical Physics*, 54(3):032203, 2013.

[178] A. Taylor and D. J. Higham. CONTEST. *ACM Transactions on Mathematical Software*, 35(4):1–17, feb 2009.

[179] K. Thiruvengadam. Queueing with breakdowns. *Operations Research*, 11:62–71, 1963.

[180] P. Vakili. Using a standard clock technique for efficient simulation. *Operations Research Letters*, 10(8):445–452, 1991.

[181] N. van Dijk, B. Haverkort, and I. Niemegeers. Performance modelling of computer and communication systems. *Performance Evaluation*, 14:135–138, 1992.

[182] T. van Woensel and N. Vandaele. Modelling traffic flows with queueing models: A review. *Asia-Pasific Journal of Operations Research*, 24(4):1–27, 2006.

[183] N. Vandaele, T. van Woensel, and A. Verbruggen. A queuing based traffic flow model. *Transportation Research-D: Transport and Environment*, 5:121–135, 2000.

[184] S. Vigna. Spectral ranking, arXiv:0912.0238v13. Technical report, 2013.

[185] U. Von Luxburg. A tutorial on spectral clustering. *Statistics and Computing*, 17(4):395–416, 2007.

[186] R. Walstra. Nonexponential networks of queues: a maximum entropy analysis. In *SIGMETRICS 85: Proceedings of the 1985 ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems*, pages 27–37, New York, 1985.

[187] J. Wang, J. Cao, and Q. Li. Reliability analysis of the retrial queue with server breakdowns and repairs. *Queueing Systems*, 38(4):363–380, 2001.

[188] G. Weiss. Jackson-networks with unlimited supply of work. *Journal of Applied Probability*, 42(3):879–882, 2005.

[189] W. Whitt. Asymptotic formulas for Markov processes with applications to simulation. *Operations research*, 40(2):279–291, 1992.

[190] E. Whittacker. On the reversion of series. *Gaz. Mat. Lisboa*, pages 1–12, 1951.

[191] A. Winkelmann and T. Haselmann. Ein konzeptionelles model auf basis von Markov-ketten zur berechnung und bewertung von persönlichen kompetenzen in sozialen netzwerken. In *Proceedings of the Multikonferenz Wirtschaftsinformatik (MKWI)*, pages 1317–1328, 2010.

[192] D. H. Wolpert and W. G. Macready. No free lunch theorems for optimization. *IEEE Transactions on Evolutionary Computation*, 1(1):67–82, 1997.

[193] J. Xu, B. L. Nelson, and J. Hong. Industrial strength COMPASS: a comprehensive algorithm and software for optimization via simulation. *ACM Transactions on Modeling and Computer Simulation (TOMACS)*, 20(1):Article 3, 2010.

[194] D. Yan and H. Mukai. Stochastic discrete optimization. *SIAM Journal on Control and Optimization*, 30(3):594–612, 1992.

[195] G. Yin and Q. Zhang. *Continuous-Time Markov Chains and Applications: A Singular Perturbations Approach*. Springer, New York, 1998.

[196] G. Yin and Q. Zhang. Singularly perturbed discrete-time Markoc chains. *SIAM Journal on Applied Mathematics*, 61:834–854, 2000.