

This contains a list of my refereed publications. It also includes problem solutions; student theses; unpublished techreports. A complete (gzipped) bib file can be obtained with URL <http://orion.math.uwaterloo.ca:80/~hwoikowi/henry/reports/publs.bib.gz>

The order of the list is:

1. Books and special issues first.
2. Chapters in Books second
3. Papers in refereed Journals third
4. Papers in refereed Conference Proceedings fourth
5. Technical Reports fifth
6. Theses (including students' theses) sixth

References

- [1] Heinz H. Bauschke, Regina S. Burachik, Patrick L. Combettes, Veit Elser, D. Russell Luke, and Henry Wolkowicz, editors. *Fixed-point algorithms for inverse problems in science and engineering*, volume 49 of *Springer Optimization and Its Applications*. Springer, New York, 2011.
- [2] R. Bhatia, R. Guralnick, S. Kirkland, and H. Wolkowicz, editors. *12th ILAS Conference Proceeding, Regina 2005*, volume 421,1. Elsevier, 2007. Held in Regina, SK, June 26–29, 2005.
- [3] E. Andersen, E. de Klerk, L. Tunçel, H. Wolkowicz, and S. Zhang, editors. *Large Scale Nonlinear and Semidefinite Programming*, volume 109, 2-3, Ser. B. North-Holland Publishing Co., Amsterdam, 2007. Dedicated to the memory of Jos Sturm, Math. Programming, Ser. B.
- [4] P. Pardalos and H. Wolkowicz, editors. *New approaches for hard discrete optimization*. Springer, Norwell, MA, 2002. Papers from the Fields Workshop on Novel Approaches to Hard Discrete Optimization held at the University of Waterloo, Waterloo, ON, April 26–28, 2001, J. Comb. Optim. **6** (2002), no. 3.
- [5] Panos Pardalos and Henry Wolkowicz, editors. *Novel approaches to hard discrete optimization*, volume 37 of *Fields Institute Communications*. American Mathematical Society, Providence, RI, 2003. Papers from the workshop held at the University of Waterloo, Waterloo, ON, April 26–28, 2001.
- [6] P. Pardalos and H. Wolkowicz, editors. *Topics in Semidefinite and Interior-Point Methods*, The Fields Institute for Research in Mathematical Sciences, Communications Series, Providence, RI, 1998. American Mathematical Society.

- [7] P. Pardalos and H. Wolkowicz, editors. *Semidefinite Programming and Interior-Point Approaches for Combinatorial Optimization Problems*. Kluwer Academic Publishers, Hingham, MA, 1998. Papers from the workshop held at the University of Toronto, Toronto, ON, May 15–17, 1996, *J. Comb. Optim.* **2** (1998), no. 1.
- [8] M.L. Overton and H. Wolkowicz, editors. *Semidefinite Programming*. North-Holland Publishing Co., Amsterdam, 1997. Dedicated to the memory of Svatopluk Poljak, *Math. Programming* **77** (1997), no. 2, Ser. B.
- [9] F. Pukelsheim, G. P. H. Styan, H. Wolkowicz, and I. Zaballa, editors. *Special Issue Honoring Ingram Olkin*. Elsevier Science Inc., 1994. *Linear Algebra and Its Applications* **199** (1994).
- [10] P. Pardalos and H. Wolkowicz, editors. *Quadratic assignment and related problems*. American Mathematical Society, Providence, RI, 1994. Papers from the workshop held at Rutgers University, New Brunswick, New Jersey, May 20–21, 1993.
- [11] H. Wolkowicz, R. Saigal, and L. Vandenbergh, editors. *Handbook of semidefinite programming*. International Series in Operations Research & Management Science, 27. Kluwer Academic Publishers, Boston, MA, 2000. Theory, algorithms, and applications.
- [12] N. Krislock and H. Wolkowicz. Euclidean distance matrices and applications. In *Handbook on semidefinite, conic and polynomial optimization*, volume 166 of *Internat. Ser. Oper. Res. Management Sci.*, pages 879–914. Springer, New York, 2012.
- [13] H. Wolkowicz. Generating eigenvalue bounds using optimization. In *Nonlinear analysis and variational problems*, volume 35 of *Springer Optim. Appl.*, pages 465–490. Springer, New York, 2010.
- [14] H. Wolkowicz. Semidefinite programming. In L. Hogben, editor, *CRC Handbook of Linear Algebra (HLA)*, pages 51–1–51–13. CRC Press, Bacon Raton, FL, 2007. 2008 Choice Magazine Outstanding Academic Title.
- [15] H. Wolkowicz. Semidefinite programming approaches to the quadratic assignment problem. In *Nonlinear assignment problems*, volume 7 of *Comb. Optim.*, pages 143–174. Kluwer Acad. Publ., Dordrecht, 2000.
- [16] A.Y. Alfakih and H. Wolkowicz. Matrix completion problems. In *Handbook of semidefinite programming*, volume 27 of *Internat. Ser. Oper. Res. Management Sci.*, pages 533–545. Kluwer Acad. Publ., Boston, MA, 2000.
- [17] Y.E. Nesterov, H. Wolkowicz, and Y. Ye. Semidefinite programming relaxations of nonconvex quadratic optimization. In *Handbook of semidefinite programming*, volume 27 of *Internat. Ser. Oper. Res. Management Sci.*, pages 361–419. Kluwer Acad. Publ., Boston, MA, 2000.

- [18] S. Kruk and H. Wolkowicz. Sequential, quadratic constrained, quadratic programming for general nonlinear programming. In *Handbook of semidefinite programming*, volume 27 of *Internat. Ser. Oper. Res. Management Sci.*, pages 563–575. Kluwer Acad. Publ., Boston, MA, 2000.
- [19] H. Wolkowicz. Semidefinite and Lagrangian relaxations for hard combinatorial problems. In M.J.D. Powell, editor, *Proceedings of 19th IFIP TC7 Conference on System Modelling and Optimization, July, 1999, Cambridge*, pages 269–309. Kluwer Academic Publishers, Boston, MA, 2000.
- [20] H. Wolkowicz. Semidefinite programming. In P.M. Pardalos and M.G.C. Resende, editors, *Handbook of Applied Optimization*, pages 40–50. Oxford University Press, New York, 2002.
- [21] H. Wolkowicz. Duality for semidefinite programming. In *Encyclopedia of Optimization*. Kluwer Academic Publishers, Boston, MA, 2001.
- [22] Y. Censor, , W. Moursi, T. Weames, and H. Wolkowicz. Regularized nonsmooth newton algorithms for best approximation with applications. Technical report, University of Waterloo, Waterloo, Ontario, 2022 submitted. 37 pages, research report.
- [23] Fei Wang and Henry Wolkowicz. Singularity degree of non-facially exposed faces. Technical report, 2022 submitted. 19 pages.
- [24] Zhenan Fan, Haesol Im, Tyler Weames, Henry Wolkowicz, Yong Zhang, and Zirui Zhou. Machine learning with knowledge under infinitely many constraints. Technical report, University of Waterloo, 2022 under revision. 21 pages.
- [25] H. Im and H. Wolkowicz. Revisiting degeneracy, strict feasibility, stability, in linear programming. *European J. Oper. Res.*, 310(2):495–510, 2023. 35 pages, 10.48550/ARXIV.2203.02795.
- [26] H. Im and H. Wolkowicz. A strengthened Barvinok-Pataki bound on SDP rank. *Oper. Res. Lett.*, 49(6):837–841, 2021.
- [27] H. Hu, H. Im, J. Lin, N. Lütkenhaus, and H. Wolkowicz. Robust interior point method for quantum key distribution rate computation. *Quantum*, 6:792–840, 2022.
- [28] H. Hu, H. Im, X. Li, and H. Wolkowicz. A semismooth Newton-type method for the nearest doubly stochastic matrix problem. *Math. Oper. Res.*, May, 2023. arxiv.org/abs/2107.09631, 35 pages.
- [29] B. Ghaddar, H. Hu, O. Kuryatnikova, and H. Wolkowicz. SDP relaxations and ADMM for power flow problems. Technical report, University of Waterloo, Waterloo, Ontario, 2021. 45 pages, research report.

- [30] F. Burkowski, H. Im, and H. Wolkowicz. A Peaceman-Rachford splitting method for the protein side-chain positioning problem. Technical report, University of Waterloo, Waterloo, Ontario, 2022. arxiv.org/abs/2009.01450,21.
- [31] X. Li, T.K. Pong, H. Sun, and H. Wolkowicz. A strictly contractive Peaceman-Rachford splitting method for the doubly nonnegative relaxation of the minimum cut problem. *Comput. Optim. Appl.*, 78(3):853–891, 2021.
- [32] H. Hu, R. Sotirov, and H. Wolkowicz. Facial reduction for symmetry reduced semidefinite programs. *Math. Program.*, 2022. published Sept. 2022.
- [33] H. Hu, S. Sremac, H.J. Woerdeman, and H. Wolkowicz. Finding a “nice” principal submatrix”, completions. Technical report, University of Waterloo, Waterloo, Ontario, 2019. 16 pages, research report.
- [34] N. Graham, H. Hu, H. Im, X. Li, and H. Wolkowicz. A restricted dual Peaceman-Rachford splitting method for a strengthened DNN relaxation for QAP. *INFORMS J. Comput.*, 34(4):2125–2143, 2022.
- [35] L. Pattersson, S. Sremac, F. Wang, and H. Wolkowicz. Noisy Euclidean distance matrix completion with a single missing node. *J. Global Optim.*, 75(4):973–1002, 2019.
- [36] M. Fampa, D. Lubke, F. Wang, and H. Wolkowicz. Parametric convex quadratic relaxation of the quadratic knapsack problem. *European J. Oper. Res.*, 281(1):36–49, 2020.
- [37] M. Fampa, D. Lubke, F. Wang, and H. Wolkowicz. Extending cover inequalities for the quadratic knapsack problem to relaxations in lifted space. The XIX Latin-Iberoamerican Conference on Operations Research, CLAIO 2018, pages 353–360, 2018.
- [38] M. Fampa, D. Lubke, F. Wang, and H. Wolkowicz. Convexification of the quadratic knapsack problem with integrated cut strengthening. Proceedings of the workshop on Mixed-integer Nonlinear Optimization: a hatchery for modern mathematics, Mathematisches Forschungsinstitut, pages 19–21, Oberwolfach, Germany, 2019.
- [39] S. Sremac, H.J. Woerdeman, and H. Wolkowicz. Error bounds and singularity degree in semidefinite programming. *SIAM J. Optim.*, 31(1):812–836, 2021.
- [40] S. Sremac, H.J. Woerdeman, and H. Wolkowicz. Complete facial reduction in one step for spectrahedra, 2017. 1710.07410, arXiv.

- [41] S. Sremac, H.J. Woerdeman, and H. Wolkowicz. Maximum determinant positive definite Toeplitz completions. In *Operator theory, analysis and the state space approach*, volume 271 of *Oper. Theory Adv. Appl.*, pages 421–441. Birkhäuser/Springer, Cham, 2018.
- [42] G. Reid, F. Wang, and H. Wolkowicz. An SDP-based method for the real radical ideal membership test. SYNASC2017, International Symposium on Symbolic and Numeric Algorithms for Scientific Computing, 2017.
- [43] Y. Nesterov, H. Wolkowicz, and Y. Xia. Completely positive low-rank matrix completion using nuclear norm with facial reduction. Technical report, University of Waterloo, Waterloo, Ontario, 2017. in progress.
- [44] S. Ma, F. Wang, L. Wei, and H. Wolkowicz. Robust principal component analysis using facial reduction. *Optim. Eng.*, 21(3):1195–1219, 2020.
- [45] D. Drusvyatskiy, S. Sremac, and H. Wolkowicz. Three views of facial reduction in cone optimization. Technical report, University of Waterloo, Waterloo, Ontario, 2017. survey in progress.
- [46] D. Drusvyatskiy and H. Wolkowicz. The many faces of degeneracy in conic optimization. *Foundations and Trends® in Optimization*, 3(2):77–170, 2017.
- [47] I. Davidson and H. Wolkowicz. Rank restricted semidefinite matrices and image closedness. Technical report, University of Waterloo, Waterloo, Ontario, 2016. submitted.
- [48] H. Wolkowicz. Tutorial: Facial reduction in cone optimization with applications to matrix completions, at: Dimacs workshop on distance geometry: Theory and applications, 2016. Based on survey paper: The many faces of degeneracy in conic optimization, (with D. Drusvyatskiy).
- [49] S. Huang and H. Wolkowicz. Low-rank matrix completion using nuclear norm minimization and facial reduction. *J. Global Optim.*, 72(1):5–26, 2018.
- [50] M. Salahi, A. Taati, and H. Wolkowicz. Local nonglobal minima for solving large-scale extended trust-region subproblems. *Comput. Optim. Appl.*, 66(2):223–244, 2017. submitted Dec. 23, 2015, 25 pages, accepted to COAP Aug. 20, 2016, 25 pages, online Sept. 2016, doi:10.1007/s10589-016-9867-4.
- [51] D.E. Oliveira, H. Wolkowicz, and Y. Xu. ADMM for the SDP relaxation of the QAP. *Math. Program. Comput.*, 10(4):631–658, 2018.
- [52] Z. Tang and H. Wolkowicz. ADMM for the second lifting SDP relaxation of MC. Technical report, University of Waterloo, Waterloo, Ontario, 2017. in progress.

- [53] X-B Li, F. Burkowski, and H. Wolkowicz. Semidefinite facial reduction and rigid cluster interpolation in protein structure elastic network models. IEEE BIBM 2016, Waterloo, Ontario, 2016. submitted for refereed conference, Dec. 1, 2016, 10 pages, unpublished.
- [54] X-B Li, F. Burkowski, and H. Wolkowicz. Semidefinite facial reduction and rigid cluster elastic network interpolation of protein structures. IEEE International Conference on Bioinformatics and Biomedicine (BIBM), IEEE Xplore, January 19, 2017, Waterloo, Ontario, 2017.
- [55] X-B Li, F. Burkowski, and H. Wolkowicz. Protein structure normal mode analysis on the positive semidefinite matrix manifold. Technical report, University of Waterloo, Waterloo, Ontario, 2015. submitted Nov. 1, 2015, 10 pages.
- [56] Y.-L. Cheung and H. Wolkowicz. Sensitivity analysis of semidefinite programs without strong duality. Technical report, University of Waterloo, Waterloo, Ontario, 2014. submitted June 2014, 37 pages.
- [57] G. Reid, F. Wang, H. Wolkowicz, and W. Wu. Facial reduction and SDP methods for systems of polynomial equations. Technical report, University of Western Ontario, London, Ontario, 2014. submitted Dec. 2014, 38 pages.
- [58] F. Wang, G. Reid, and H. Wolkowicz. Finding maximum rank moment matrices by facial reduction on primal form and Douglas-Rachford iteration. *ACM Commun. Comput. Algebra*, 51(1):35–37, 2017.
- [59] D. Drusvyatskiy, C.-K. Li, Y.-L. Cheung Voronin, D.C. Pelejo, and H. Wolkowicz. Projection methods for quantum channel construction. *Quantum Inf. Process.*, 14(8):3075–3096, 2015.
- [60] Y.-L. Cheung, D. Drusvyatskiy, C.-K. Li, D.C. Pelejo, and H. Wolkowicz. Projection methods in quantum information science. *Quantum Information Processing*, 14(8):3075–3095, 2015. submitted July. 2014, 15 pages, under revision Oct. 2014.
- [61] D. Drusvyatskiy, G. Li, and H. Wolkowicz. A note on alternating projections for ill-posed semidefinite feasibility problems. *Math. Program.*, 162(1-2, Ser. A):537–548, 2017.
- [62] D. Drusvyatskiy, S.A. Vavasis, and H. Wolkowicz. Extreme point inequalities and geometry of the rank sparsity ball. *Math. Program.*, 152(1-2, Ser. A):521–544, 2015.
- [63] D. Drusvyatskiy, G. Pataki, and H. Wolkowicz. Coordinate shadows of semidefinite and Euclidean distance matrices. *SIAM J. Optim.*, 25(2):1160–1178, 2015.

- [64] T.K. Pong, H. Sun, N. Wang, and H. Wolkowicz. Eigenvalue, quadratic programming, and semidefinite programming relaxations for a cut minimization problem. *Comput. Optim. Appl.*, 63(2):333–364, 2016.
- [65] D. Drusvyatskiy, N. Krislock, Y-L. Cheung Voronin, and H. Wolkowicz. Noisy Euclidean distance realization: robust facial reduction and the Pareto frontier. *SIAM J. Optim.*, 27(4):2301–2331, 2017.
- [66] T.K. Pong and H. Wolkowicz. The generalized trust region subproblem. *Comput. Optim. Appl.*, 58(2):273–322, 2014.
- [67] M-H. Lin and H. Wolkowicz. A general hua-type matrix equality and its applications. Technical report, University of Waterloo, 2013. 7 pages, submitted Jan. 2013.
- [68] M-H. Lin and H. Wolkowicz. Hiroshima’s theorem and matrix norm inequalities. *Acta Sci. Math. (Szeged)*, 81(1-2):45–53, 2015.
- [69] B. Alipanahi, N. Krislock, A. Ghodsi, and H. Wolkowicz. Large-scale manifold learning by semidefinite facial reduction. Technical report, University of Waterloo, Waterloo, Ontario, 2012. 19pages.
- [70] B. Alipanahi, N. Krislock, A. Ghodsi, H. Wolkowicz, L. Donaldson, and M. Li. Protein structure by semidefinite facial reduction. In Benny Chor, editor, *Research in Computational Molecular Biology*, volume 7262 of *Lecture Notes in Computer Science*, pages 1–11. Springer Berlin / Heidelberg, 2012.
- [71] B. Alipanahi, N. Krislock, A. Ghodsi, H. Wolkowicz, L. Donaldson, and M. Li. Determining protein structures from NOESY distance constraints by semidefinite programming. *J. Comput. Biol.*, 20(4):296–310, 2013.
- [72] B. Alipanahi, N. Krislock, A. Ghodsi, H. Wolkowicz, L. Donaldson, and M. Li. Protein structure by semidefinite facial reduction. In *URL: recomb2012.crg.cat*, Waterloo, Ontario, 2012. poster session at RECOMB2012.
- [73] M-H. Lin and H. Wolkowicz. An eigenvalue majorization inequality for positive semidefinite block matrices. *Linear Multilinear Algebra*, 60(11-12):1365–1368, 2012.
- [74] David H. Bailey, Heinz H. Bauschke, Peter Borwein, Frank Garvan, Michel Théra, Jon D. Vanderwerff, and Henry Wolkowicz, editors. *Computational and analytical mathematics*, volume 50 of *Springer Proceedings in Mathematics & Statistics*. Springer, New York, 2013. In honor of Jonathan Borwein’s 60th birthday, Papers from the workshop (JonFest) held at Simon Fraser University, Burnaby, BC, May 16–20, 2011.

- [75] Yuen-Lam Cheung, Simon Schurr, and Henry Wolkowicz. Preprocessing and regularization for degenerate semidefinite programs. In *Computational and analytical mathematics*, volume 50 of *Springer Proc. Math. Stat.*, pages 251–303. Springer, New York, 2013.
- [76] Heinz H. Bauschke, Michel Théra, and Henry Wolkowicz. Preface [Special issue: Computational and analytical mathematics]. *Math. Program.*, 139(1-2, Ser. B):1–3, 2013.
- [77] B. Alipanahi, N. Krislock, A. Ghodsi, H. Wolkowicz, L. Donaldson, and M. Li. SPROS: An SDP-based protein structure determination from NMR data. In *URL: compbio.cs.sfu.ca/recomb2011*, Waterloo, Ontario, 2011. poster session at RECOMB2011.
- [78] B. Alipanahi, N. Krislock, A. Ghodsi, H. Wolkowicz, L. Donaldson, and M. Li. Determining protein structures from NOESY distance constraints by semidefinite programming. *J. Comput. Biol.*, 20(4):296–310, 2013.
- [79] X.V. Doan and H. Wolkowicz. Numerical computations and the ω -condition number. Technical Report CORR 2011-03, University of Waterloo, Waterloo, Ontario, 2011. submitted in July, 2011, 19 pages.
- [80] F. Burkowski, Y-L. Cheung, and H. Wolkowicz. Efficient use of semidefinite programming for selection of rotamers in protein conformations. *INFORMS J. Comput.*, 26(4):748–766, 2014.
- [81] X.V. Doan, S. Kruk, and H. Wolkowicz. A robust algorithm for semidefinite programming. *Optim. Methods Softw.*, 27(4-5):667–693, 2012.
- [82] Y. Ding, D. Ge, and H. Wolkowicz. On equivalence of semidefinite relaxations for quadratic matrix programming. *Math. Oper. Res.*, 36(1):88–104, 2011.
- [83] N. Krislock and H. Wolkowicz. Explicit sensor network localization using semidefinite representations and facial reductions. *SIAM J. Optim.*, 20(5):2679–2708, 2010.
- [84] A.Y. Alfakih, M.F. Anjos, V. Piccialli, and H. Wolkowicz. Euclidean distance matrices, semidefinite programming and sensor network localization. *Port. Math.*, 68(1):53–102, 2011.
- [85] L. Tunçel and H. Wolkowicz. Strong duality and minimal representations for cone optimization. *Comput. Optim. Appl.*, 53(2):619–648, 2012.
- [86] Y. Ding, N. Krislock, J. Qian, and H. Wolkowicz. Sensor network localization, Euclidean distance matrix completions, and graph realization. *Optim. Eng.*, 11(1):45–66, 2010.

- [87] Y. Ding, N. Krislock, J. Qian, and H. Wolkowicz. Sensor network localization, Euclidean distance matrix completions, and graph realization. In *MELT'08: Proceedings of the First ACM International Workshop on Mobile Entity Localization and Tracking in GPS-less Environments*, pages 129–134, 2008.
- [88] M.F. Anjos, M. Desroches, A. Haque, O. Grodzevich, H. Wei, and H. Wolkowicz. Multi-stage investment decision under contingent demand for networking planning. In *Proceedings of the 2006 IEEE GLOBECOM Conference in San Francisco*, pages 1–5, 2007.
- [89] M. Potapchik, L. Tunçel, and H. Wolkowicz. Large scale portfolio optimization with piecewise linear transaction costs. *Optim. Methods Softw.*, 23(6):929–952, 2008.
- [90] Y. Ding and H. Wolkowicz. A low-dimensional semidefinite relaxation for the quadratic assignment problem. *Math. Oper. Res.*, 34(4):1008–1022, 2009.
- [91] A.Y. Alfakih and H. Wolkowicz. Some necessary and some sufficient trace inequalities for Euclidean distance matrices. *Linear Multilinear Algebra*, 55(5):499–506, 2007.
- [92] O. Grodzevich and H. Wolkowicz. Regularization using a parameterized trust region subproblem. *Math. Program.*, 116(1-2, Ser. B):193–220, 2009.
- [93] M. Gonzalez-Lima, H. Wei, and H. Wolkowicz. A stable primal-dual approach for linear programming under nondegeneracy assumptions. *Comput. Optim. Appl.*, 44(2):213–247, 2009.
- [94] S. Al-Homidan and H. Wolkowicz. Approximate and exact completion problems for Euclidean distance matrices using semidefinite programming. *Linear Algebra Appl.*, 406:109–141, 2005.
- [95] H. Wei and H. Wolkowicz. Generating and measuring instances of hard semidefinite programs. *Math. Program.*, 125(1, Ser. A):31–45, 2010.
- [96] L. Tunçel and H. Wolkowicz. Strengthened existence and uniqueness conditions for search directions in semidefinite programming. *Linear Algebra Appl.*, 400:31–60, 2005.
- [97] H. Wolkowicz. Solving semidefinite programs using preconditioned conjugate gradients. *Optim. Methods Softw.*, 19(6):653–672, 2004.
- [98] M.F. Anjos and H. Wolkowicz. Geometry of semidefinite max-cut relaxations via matrix ranks. *J. Comb. Optim.*, 6(3):237–270, 2002. New approaches for hard discrete optimization (Waterloo, ON, 2001).
- [99] C. Fortin and H. Wolkowicz. The trust region subproblem and semidefinite programming. *Optim. Methods Softw.*, 19(1):41–67, 2004.

- [100] A.Y. Alfakih and H. Wolkowicz. Two theorems on Euclidean distance matrices and Gale transform. *Linear Algebra Appl.*, 340:149–154, 2002.
- [101] M.F. Anjos and H. Wolkowicz. Semidefinite programming for discrete optimization and matrix completion problems. volume 123, pages 513–577. 2002. Workshop on Discrete Optimization, DO’99 (Piscataway, NJ).
- [102] S. Kruk and H. Wolkowicz. Convergence of a short-step primal-dual algorithm based on the Gauss-Newton direction. *J. Appl. Math.*, (10):517–534, 2003.
- [103] M.F. Anjos and H. Wolkowicz. Strengthened semidefinite relaxations via a second lifting for the Max-Cut problem. *Discrete Appl. Math.*, 119(1-2):79–106, 2002. Foundations of heuristics in combinatorial optimization.
- [104] H. Wolkowicz. A note on lack of strong duality for quadratic problems with orthogonal constraints. volume 143, pages 356–364. 2002. Interior point methods (Budapest, 2000).
- [105] J.L. Nazareth, H. Wolkowicz, and M. Zhu. The quasi-Cauchy relation and diagonal updating. *SIAM J. Optim.*, 9(4):1192–1204 (electronic), 1999. Dedicated to John E. Dennis, Jr., on his 60th birthday.
- [106] M. F. Anjos and H. Wolkowicz. Strengthened semidefinite programming relaxations for the max-cut problem. In *Advances in convex analysis and global optimization (Pythagorion, 2000)*, volume 54 of *Nonconvex Optim. Appl.*, pages 409–420. Kluwer Acad. Publ., Dordrecht, 2001.
- [107] K.M. Anstreicher, X. Chen, H. Wolkowicz, and Y. Yuan. Strong duality for a trust-region type relaxation of the quadratic assignment problem. *Linear Algebra Appl.*, 301(1-3):121–136, 1999.
- [108] K.M. Anstreicher and H. Wolkowicz. On Lagrangian relaxation of quadratic matrix constraints. *SIAM J. Matrix Anal. Appl.*, 22(1):41–55, 2000.
- [109] S. Kruk, M. Muramatsu, F. Rendl, R.J. Vanderbei, and H. Wolkowicz. The Gauss-Newton direction in semidefinite programming. *Optim. Methods Softw.*, 15(1):1–28, 2001.
- [110] S. Kruk and H. Wolkowicz. Pseudolinear programming. *SIAM Rev.*, 41(4):795–805 (electronic), 1999.
- [111] H. Wolkowicz. Semidefiniteness of a sum: Problem solution 19-5.5. *IMAGE, The Bulletin of ILAS*, 20:30–31, 1998.
- [112] A.Y. Alfakih, A. Khandani, and H. Wolkowicz. Solving Euclidean distance matrix completion problems via semidefinite programming. *Comput. Optim. Appl.*, 12(1-3):13–30, 1999. A tribute to Olvi Mangasarian.

- [113] S. Kruk and H. Wolkowicz. SQ²P, sequential quadratic constrained quadratic programming. In *Advances in Nonlinear Programming (Beijing, 1996)*, pages 177–204, Dordrecht, 1998. Kluwer Acad. Publ.
- [114] H. Wolkowicz and Q. Zhao. Semidefinite programming relaxations for the graph partitioning problem. *Discrete Appl. Math.*, 96/97:461–479, 1999. Selected for the special Editors’ Choice, Edition 1999.
- [115] Q. Zhao, S.E. Karisch, F. Rendl, and H. Wolkowicz. Semidefinite programming relaxations for the quadratic assignment problem. *J. Comb. Optim.*, 2(1):71–109, 1998. Semidefinite Programming and Interior-point Approaches for Combinatorial Optimization Problems (Fields Institute, Toronto, ON, 1996).
- [116] C.R. Johnson, B. Kroschel, and H. Wolkowicz. An interior-point method for approximate positive semidefinite completions. *Comput. Optim. Appl.*, 9(2):175–190, 1998.
- [117] M.V. Ramana, L. Tunçel, and H. Wolkowicz. Strong duality for semidefinite programming. *SIAM J. Optim.*, 7(3):641–662, 1997.
- [118] C. Helmberg, S. Poljak, F. Rendl, and H. Wolkowicz. Combining semidefinite and polyhedral relaxations for integer programs. In *Integer Programming and Combinatorial Optimization (Copenhagen, 1995)*, pages 124–134. Springer, Berlin, 1995.
- [119] F. Rendl and H. Wolkowicz. A semidefinite framework for trust region subproblems with applications to large scale minimization. *Math. Programming*, 77(2, Ser. B):273–299, 1997.
- [120] S. Poljak, F. Rendl, and H. Wolkowicz. A recipe for semidefinite relaxation for (0, 1)-quadratic programming. *J. Global Optim.*, 7(1):51–73, 1995.
- [121] C. Helmberg, F. Rendl, R.J. Vanderbei, and H. Wolkowicz. An interior-point method for semidefinite programming. *SIAM J. Optim.*, 6(2):342–361, 1996.
- [122] P. Pardalos, F. Rendl, and H. Wolkowicz. The quadratic assignment problem: a survey and recent developments. In P.M. Pardalos and H. Wolkowicz, editors, *Quadratic assignment and related problems (New Brunswick, NJ, 1993)*, pages 1–42. Amer. Math. Soc., Providence, RI, 1994.
- [123] J. Falkner, F. Rendl, and H. Wolkowicz. A computational study of graph partitioning. *Math. Programming*, 66(2, Ser. A):211–239, 1994.
- [124] R. Stern and H. Wolkowicz. Trust region problems and nonsymmetric eigenvalue perturbations. *SIAM J. Matrix Anal. Appl.*, 15(3):755–778, 1994.

- [125] R. Stern and H. Wolkowicz. Indefinite trust region subproblems and non-symmetric eigenvalue perturbations. *SIAM J. Optim.*, 5(2):286–313, 1995.
- [126] S.E. Karisch, F. Rendl, and H. Wolkowicz. Trust regions and relaxations for the quadratic assignment problem. In *Quadratic assignment and related problems (New Brunswick, NJ, 1993)*, pages 199–219. Amer. Math. Soc., Providence, RI, 1994.
- [127] F. Rendl and H. Wolkowicz. A projection technique for partitioning the nodes of a graph. *Ann. Oper. Res.*, 58:155–179, 1995. Applied mathematical programming and modeling, II (APMOD 93) (Budapest, 1993).
- [128] S. Poljak and H. Wolkowicz. Convex relaxations of $(0, 1)$ -quadratic programming. *Math. Oper. Res.*, 20(3):550–561, 1995.
- [129] H. Wolkowicz. Measures for symmetric rank-one updates. *Math. Oper. Res.*, 19(4):815–830, 1994.
- [130] H. Wolkowicz and Q. Zhao. An all-inclusive efficient region of updates for least change secant methods. *SIAM J. Optim.*, 5(1):172–191, 1995.
- [131] H. Wolkowicz. Explicit solutions for interval semidefinite linear programs. *Linear Algebra Appl.*, 236:95–104, 1996.
- [132] F. Rendl, R. J. Vanderbei, and H. Wolkowicz. Max-min eigenvalue problems, primal-dual interior point algorithms, and trust region subproblems. *Optim. Methods Softw.*, 5:1–16, 1995.
- [133] J.E. Dennis Jr. and H. Wolkowicz. Sizing and least-change secant methods. *SIAM J. Numer. Anal.*, 30(5):1291–1314, 1993.
- [134] S.W. Hadley, F. Rendl, and H. Wolkowicz. A new lower bound via projection for the quadratic assignment problem. *Math. Oper. Res.*, 17(3):727–739, 1992.
- [135] S.W. Hadley, F. Rendl, and H. Wolkowicz. Symmetrization of nonsymmetric quadratic assignment problems and the Hoffman-Wielandt inequality. *Linear Algebra Appl.*, 167:53–64, 1992. Sixth Haifa Conference on Matrix Theory (Haifa, 1990).
- [136] V. Jeyakumar and H. Wolkowicz. Generalizations of Slater’s constraint qualification for infinite convex programs. *Math. Programming*, 57(1, Ser. B):85–101, 1992.
- [137] A. Ben-Israel and H. Wolkowicz. A recursive volume reducing algorithm for semi-infinite linear programming. In *Systems and Management Science by Extremal Methods*, Boston, MA, 1992. Kluwer Academic Publishers. invited paper.

- [138] S.W. Hadley, F. Rendl, and H. Wolkowicz. Bounds for the quadratic assignment problems using continuous optimization. In *Integer Programming and Combinatorial Optimization*, pages 237–248, Waterloo, Ontario, Canada, 1990. University of Waterloo Press.
- [139] V. Jeyakumar and H. Wolkowicz. Zero duality gaps in infinite-dimensional programming. *J. Optim. Theory Appl.*, 67(1):87–108, 1990.
- [140] R.J. Stern and H. Wolkowicz. Results on invariant cones. *Linear Algebra Appl.*, 166:1–26, 1991. Proceedings from the Haifa Matrix Theory Conference, June 1990.
- [141] R. Beatson and H. Wolkowicz. Post-processing piecewise cubics for monotonicity. *SIAM J. Numer. Anal.*, 26(2):480–502, 1989.
- [142] F. Rendl and H. Wolkowicz. Applications of parametric programming and eigenvalue maximization to the quadratic assignment problem. *Math. Programming*, 53(1, Ser. A):63–78, 1992.
- [143] W.R.S. Sutherland, H. Wolkowicz, and V. Zeidan. An explicit linear solution for the quadratic dynamic programming problem. *J. Optim. Theory Appl.*, 58(2):319–330, 1988.
- [144] H. Wolkowicz and G.P.H. Styan. Samuelson’s inequality. In S. Kotz and N. Johnson, editors, *Encyclopedia of Statistical Sciences*, volume 8. Wiley-Interscience, 1987. invited paper.
- [145] B. Grone, C.R. Johnson, E. Marques de Sa, and H. Wolkowicz. Normal matrices. *Linear Algebra Appl.*, 87:213–225, 1987.
- [146] P.W. Smith and H. Wolkowicz. A nonlinear equation for linear programming. *Math. Programming*, 34(2):235–238, 1986.
- [147] J.M. Borwein and H. Wolkowicz. A simple constraint qualification in infinite-dimensional programming. *Math. Programming*, 35(1):83–96, 1986.
- [148] B. Grone, C.R. Johnson, E. Marques de Sa, and H. Wolkowicz. A note on maximizing the permanent of a positive definite Hermitian matrix, given the eigenvalues. *Linear and Multilinear Algebra*, 19(4):389–393, 1986.
- [149] J. Merikoski and H. Wolkowicz. Improving eigenvalue bounds using extra bounds. *Linear Algebra Appl.*, 68:93–113, 1985.
- [150] M. Lamoureaux and H. Wolkowicz. Numerical decomposition of a convex function. *J. Optim. Theory Appl.*, 47(1):51–64, 1985.
- [151] C.R. Johnson, R. Kumar, and H. Wolkowicz. Lower bounds for the spread of a matrix. *Linear Algebra Appl.*, 71:161–173, 1985.

- [152] G. Butler, C.R. Johnson, and H. Wolkowicz. Nonnegative solutions of a quadratic matrix equation arising from comparison theorems in ordinary differential equations. *SIAM J. Algebraic Discrete Methods*, 6(1):47–53, 1985.
- [153] P.W. Smith and H. Wolkowicz. Dimensionality of bi-infinite systems. *Linear Algebra Appl.*, 57:115–130, 1984.
- [154] B. Grone, C.R. Johnson, E. Marques de Sa, and H. Wolkowicz. Improving Hadamard’s inequality. *Linear and Multilinear Algebra*, 16(1-4):305–322, 1984.
- [155] B. Grone, C.R. Johnson, E. Marques de Sa, and H. Wolkowicz. Positive definite completions of partial Hermitian matrices. *Linear Algebra Appl.*, 58:109–124, 1984.
- [156] B. Grone, C.R. Johnson, E. Marques de Sa, and H. Wolkowicz. Positive definite completions of partial Hermitian matrices. *Linear Algebra Appl.*, 58:109–124, 1984.
- [157] J. Merikoski, G.P.H. Styan, and H. Wolkowicz. Bounds for ratios of eigenvalues using traces. *Linear Algebra Appl.*, 55:105–124, 1983.
- [158] H. Wolkowicz. Optimality conditions and shadow prices. In *Mathematical programming with data perturbations, II (Washington, D.C., 1980)*, pages 49–63. Dekker, New York, 1983.
- [159] H. Wolkowicz. Method of reduction in convex programming. *J. Optim. Theory Appl.*, 40(3):349–378, 1983.
- [160] H. Wolkowicz. An optimality condition for a nondifferentiable convex program. *Naval Res. Logist. Quart.*, 30(3):415–418, 1983.
- [161] J.M. Borwein and H. Wolkowicz. Characterizations of optimality without constraint qualification for the abstract convex program. *Math. Programming Stud.*, 19:77–100, 1982. Optimality and stability in mathematical programming.
- [162] H. Wolkowicz. A strengthened test for optimality. *J. Optim. Theory Appl.*, 35(4):497–515, 1981.
- [163] J.M. Borwein and H. Wolkowicz. Facial reduction for a cone-convex programming problem. *J. Austral. Math. Soc. Ser. A*, 30(3):369–380, 1980/81.
- [164] J.M. Borwein and H. Wolkowicz. Characterization of optimality for the abstract convex program with finite-dimensional range. *J. Austral. Math. Soc. Ser. A*, 30(4):390–411, 1980/81.
- [165] J.M. Borwein and H. Wolkowicz. Regularizing the abstract convex program. *J. Math. Anal. Appl.*, 83(2):495–530, 1981.

- [166] H. Wolkowicz. Some applications of optimization in matrix theory. *Linear Algebra Appl.*, 40:101–118, 1981.
- [167] J.M. Borwein and H. Wolkowicz. Cone-convex programming stability and affine constraint functions. In *Generalized Concavity in Optimization and Economics*, pages 379–397. NATO conference, Academic Press, 1981. invited paper.
- [168] H. Wolkowicz. Geometry of optimality conditions and constraint qualifications: the convex case. *Math. Programming*, 19(1):32–60, 1980.
- [169] H. Wolkowicz and G.P.H. Styan. A history of Samuelson’s inequality. *Amer. Statist.*, 34:250, 1980.
- [170] H. Wolkowicz. Shadow prices for an unstable convex program. *Utilitas Math.*, 18:119–139, 1980.
- [171] H. Wolkowicz and G.P.H. Styan. More bounds for eigenvalues using traces. *Linear Algebra Appl.*, 31:1–17, 1980.
- [172] H. Wolkowicz and G.P.H. Styan. Bounds for eigenvalues using traces. *Linear Algebra Appl.*, 29:471–506, 1980.
- [173] H. Wolkowicz. Convex programs with equivalent duals. *Appl. Math. Notes*, 5(2):45–62, 1980.
- [174] H. Wolkowicz and G.P.H. Styan. Extensions of Samuelson’s inequality. *Amer. Statist.*, 33(3):143–144, 1979.
- [175] H. Wolkowicz. Calculating the cone of directions of constancy. *J. Optim. Theory Appl.*, 25(3):451–457, 1978.
- [176] H. Wolkowicz and S. Zlobec. Calculating the best approximate solution of an operator equation. *Math. Comp.*, 32(144):1183–1213, 1978.
- [177] R.J. Stern and H. Wolkowicz. A note on generalized invariant cones and the Kronecker canonical form. *Linear Algebra Appl.*, 147:97–100, 1991.
- [178] R.J. Stern and H. Wolkowicz. Exponential nonnegativity on the ice cream cone. *SIAM J. Matrix Anal. Appl.*, 12(1):160–165, 1991.
- [179] R.J. Stern and H. Wolkowicz. Invariant ellipsoidal cones. *Linear Algebra Appl.*, 150:81–106, 1991.
- [180] H. Wolkowicz. Problem solution 93-17. *SIAM Review*, 36(4):657–659, 1994.
- [181] C.R. Johnson, G. Wolkowicz, and H. Wolkowicz. Elem. prob. e. 3234. *Amer. Math. Monthly*, 94:877, 1987.
- [182] J.M. Borwein, G.P.H. Styan, and H. Wolkowicz. Some inequalities involving statistical expressions. *SIAM Review*, 24:340–342, 1982.

- [183] H. Wolkowicz. A constrained matrix optimization problem. *SIAM Review* 23, 101, 1981.
- [184] H. Wolkowicz. *Constructive approaches to approximate solutions of operator equations and convex programming*. PhD thesis, McGill University, 1978.
- [185] H. Wolkowicz. Kantorovich's general theory of approximation methods. Master's thesis, McGill University, 1975. M.Sc. Thesis.
- [186] V. Piccialli and H. Wolkowicz. Solution to problem 34-6.1. *IMAGE-The Bulletin of the International Linear Algebra Society*, 35:33–34, 2005.
- [187] H. Wolkowicz. Book review of: Optimization: Insights and Applications, by Brinkhuis and Tikhomirov. *IEEE Control Systems Magazine*, 2007.
- [188] A.Y. Alfakih and H. Wolkowicz. On the embeddability of weighted graphs in Euclidean spaces. Technical Report CORR 98-12, University of Waterloo, 1998.
- [189] A.Y. Alfakih and H. Wolkowicz. A new semidefinite programming model for large sparse Euclidean distance matrix completion problems. Technical Report CORR 2000-37, University of Waterloo, Waterloo, Canada, 2000.
- [190] Y-L. Cheung, N. Krislock, and H. Wolkowicz. Facial reduction for compressive sensing. Technical Report CORR 2010, University of Waterloo, Waterloo, Ontario, 2010. in progress.
- [191] M.F. Anjos and H. Wolkowicz. A strengthened SDP relaxation via a second lifting for the Max-Cut problem. Technical Report CORR 99-55, University of Waterloo, Waterloo, Ontario, 1999. 28 pages.
- [192] G. Gruber, S. Kruk, F. Rendl, and H. Wolkowicz. Presolving for semidefinite programs without constraint qualifications. Technical Report CORR 98-32, University of Waterloo, Waterloo, Ontario, 1998.
- [193] M.F. Anjos, N. Krislock, M. Takouda, and H. Wolkowicz. A semidefinite programming approach for the closest correlation matrix problem. Technical Report in progress, University of Waterloo, Waterloo, Ontario, 2009.
- [194] N. Krislock, F. Rendl, and H. Wolkowicz. Noisy sensor network localization using semidefinite representations and facial reduction. Technical Report CORR 2010-01, in progress, University of Waterloo, Waterloo, Ontario, 2010.
- [195] E. Andersen, E. de Klerk, L. Tunçel, H. Wolkowicz, and S. Zhang. Foreword: special issue on large-scale nonlinear and semidefinite programming. *Math. Program.*, 109(2-3, Ser. B):207–209, 2007.

- [196] S.W. Hadley and H. Wolkowicz. The Hessian of a function of the eigenvalues. Unpublished research report, University of Waterloo, 1988.
- [197] H. Wolkowicz and A. Ben-Israel. Taking advantage of degeneracy in linear programming. Unpublished Research Report CORR 86-23, University of Waterloo, 1986.
- [198] H. Wolkowicz and A. Ben-Israel. A volume and constraint reducing algorithm for linear programming. Unpublished Research Report CORR 86-29, University of Waterloo, 1986.
- [199] H. Wolkowicz. Generating eigenvalue bounds using optimization. Unpublished research report, University of Waterloo, 1985.
- [200] C. Schoettle and H. Wolkowicz. The teaching assignment problem. Unpublished research report, Emory University, 1985.
- [201] B. Grone, C.R. Johnson, E. Marques de Sa, and H. Wolkowicz. Constrained ranges of sesquilinear forms. Unpublished research report, University of Waterloo, 1983.
- [202] H. Wolkowicz. Bounds for the Kantorovich ratio. Unpublished research report, The University of Alberta, 1981.
- [203] H. Massam and H. Wolkowicz. Regularization and convex approximation. Unpublished research report, The University of Alberta, 1981.
- [204] H. Wolkowicz. Optimality and the cone of affine directions. Unpublished research report, The University of Alberta, 1980.
- [205] C. Fortin and H. Wolkowicz. A survey of the trust region subproblem within a semidefinite programming framework. Technical Report CORR 2002-22, University of Waterloo, Waterloo, Canada, 2002. URL:<http://orion.uwaterloo.ca/~hwoikowi/henry/reports/ABSTRACTS.html#surveytrs>.
- [206] A.Y. Alfakih and H. Wolkowicz. Euclidean distance matrices and the molecular conformation problem. Technical Report 17, University of Waterloo, Waterloo, Ontario, 2002.
- [207] H. Wolkowicz. Semidefinite programming. Technical Report 4, University of Waterloo, Waterloo, Ontario, 2002.
- [208] F. Rendl, R. Sotirov, and H. Wolkowicz. A note on a simplified HKM direction for special classes of SDP. Technical Report CORR Report 2002-16, University of Waterloo, Waterloo, Canada, 2002.
- [209] N. Krislock, V. Piccialli, and H. Wolkowicz. Robust semidefinite programming approaches for sensor network localization with anchors. Technical Report CORR 2006-12, University of Waterloo, Waterloo, Ontario, 2006. URL:orion.uwaterloo.ca/~hwoikowi/henry/reports/ABSTRACTS.html#sensorKPW.

- [210] E. Andersen, E. de Klerk, L. Tunçel, H. Wolkowicz, and S. Zhang. Foreword: special issue on large-scale nonlinear and semidefinite programming. *Math. Program.*, 109(2-3, Ser. B):207–209, 2007.
- [211] R. Bhatia, R. Guralnick, S. Kirkland, and H. Wolkowicz. Preface to the 12th ILAS Conference Proceedings, Regina 2005. *Linear Algebra Appl.*, 421(1):1–2, 2007. Held in Regina, SK, June 26–29, 2005.
- [212] Naomi Graham. A blueprint for semidefinite relaxations of binary-constrained quadratic programs. Master’s thesis, University of Waterloo, 2020.
- [213] Mingyu. Yang. Uncertainty set sizes, sensitivity analysis, in robust portfolio optimization. Master’s thesis, University of Waterloo, 2019.
- [214] Ryan Hughes. Updated stable method for lp. Master’s thesis, University of Waterloo, 2019.
- [215] H. Im. *Implicit Loss of Surjectivity and Facial Reduction: Theory and Applications*. PhD thesis, University of Waterloo, 2023.
- [216] S. Sremac. *Error bounds and singularity degree in semidefinite programming*. PhD thesis, University of Waterloo, 2019.
- [217] H. Im. Sensitivity analysis and robust optimization: A geometric approach for the special case of linear optimization. Master’s thesis, University of Waterloo, 2018.
- [218] H. Sun. ADMM for SDP relaxation of GP. Master’s thesis, University of Waterloo, 2016.
- [219] Z. Liao. Branch and bound via ADMM for the quadratic assignment problem. Master’s thesis, University of Waterloo, 2016.
- [220] X. Ye. Low rank matrix completion through semi-definite programming with facial reduction. Master’s thesis, University of Waterloo, 2016.
- [221] Y.-L. Cheung. *Preprocessing and Reduction for Semidefinite Programming via Facial Reduction: Theory and Practice*. PhD thesis, University of Waterloo, 2013.
- [222] M. Lin. *Angles, Majorization, Wielandt Inequality and Applications*. PhD thesis, University of Waterloo, 2013.
- [223] N. Krislock. *Semidefinite Facial Reduction for Low-Rank Euclidean Distance Matrix Completion*. PhD thesis, University of Waterloo, 2010.
- [224] H. Wei. *Numerical Stability in Linear Programming and Semidefinite Programming*. PhD thesis, University of Waterloo, 2006.

- [225] M. Potapchik. *Portfolio Selection Under Nonsmooth Convex Transaction Costs*. PhD thesis, University of Waterloo, 2006.
- [226] S. Kruk. *High Accuracy Algorithms for the Solutions of Semidefinite Linear Programs*. PhD thesis, University of Waterloo, 2001.
- [227] O. Grodzevich. Regularization using a parameterized trust region subproblem. Master's thesis, University of Waterloo, 2004.
- [228] Y. Ding. On efficient semidefinite relaxations for quadratically constrained quadratic programming. Master's thesis, University of Waterloo, 2007.
- [229] X. Cui. Computing the nearest correlation matrix using difference map method. Master's thesis, University of Waterloo, 2010.
- [230] H. Ye. Efficient trust region subproblem algorithms. Master's thesis, University of Waterloo, 2011.
- [231] C. Fortin. A survey of the trust region subproblem within a semidefinite framework. Master's thesis, University of Waterloo, 2000.
- [232] M. Froh. Trust region subproblems and linear least-squares regularization. Master's thesis, University of Waterloo, 2003.
- [233] S. Kruk. Semidefinite programming applied to nonlinear programming. Master's thesis, University of Waterloo, 1996.
- [234] Q. Zhao. *Semidefinite Programming for Assignment and Partitioning Problems*. PhD thesis, University of Waterloo, 1996.
- [235] M.F. Anjos. *New Convex Relaxations for the Maximum Cut and VLSI Layout Problems*. PhD thesis, University of Waterloo, 2001.
- [236] Q. Zhao. Measures for least change secant methods. Master's thesis, University of Waterloo, 1993.
- [237] K. Schaecke. Essay on: The Kronecker product. Master's thesis, University of Waterloo, 2004.
- [238] S.E. Karisch. Trust regions and the quadratic assignment problem. Master's thesis, University of Waterloo, 1992.
- [239] S.W. Hadley. *Continuous Optimization Approaches to the Quadratic Assignment Problem*. PhD thesis, University of Waterloo, 1989.
- [240] J. Lund. Optimal vehicle replacement policy. Master's thesis, University of Waterloo, 1988.
- [241] P. Stephan. An explicit solution to the quadratic dynamic programming problem. Master's thesis, Emory University, 1985.

- [242] C. Schoettle. The teaching assignment problem. Master's thesis, Emory University, 1985.
- [243] R. Kumar. Bounds for eigenvalues. Master's thesis, University of Alberta, 1984.