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### Academic Degrees

- B.A. Mathematics, Churchill College, Cambridge 1984  
 M.Phil. Control Engineering & Operational Research, Churchill College, Cambridge, 1985  
 Thesis: “Linear Programming and Minimum Weight Design – A Comparison of Methods for Solving a Class of Structural Optimization Problems.”  
 M.A. Mathematics, Churchill College, Cambridge, 1988  
 Ph.D. Mathematical Programming, Churchill College, Cambridge, 1989  
 Thesis: “Weak Sharp Minima & Penalty Functions in Mathematical Programming.”

### Professional Experience

- 2019– Jacques-Louis Lions Professor of Computer Sciences, University of Wisconsin  
 2017– Director, Data Sciences Hub, Wisconsin Institute for Discovery, Madison  
 2016– Stephen C. Kleene Professor in Computer Science, University of Wisconsin  
 1988 – Professor, Computer Sciences Dept., Univ. Wisconsin, Madison; Associate Prof (1994-98), Assistant Prof (1988-94); Professor (by courtesy), Ind. and Sys. Eng. (1988-present), Mathematics (2006-present)  
 2019 Simons Fellow, Isaac Newton Institute, University of Cambridge  
 2018 Visiting Professor, Judge Business School, University of Cambridge  
 2017 – 2018 Visiting Professor, Dept. Eng. Sci., University of Auckland, New Zealand  
 2017 Visiting Professor, Mathematical Institute, University of Oxford  
 2009–2017 Theme Leader (Optimization), Wisconsin Institute for Discovery, Madison  
 2003 Professeur Invité, Mathematics Department, University of Limoges, Limoges  
 2001-02 Guggenheim Fellow, Visiting Fellow, Exeter College, Oxford, and Visiting Professor, Oxford University Computing Laboratory  
 1988–2001 Member, Center for the Mathematical Sciences, University of Wisconsin  
 08/96, 12/98 Honorary Visiting Fellow, University of New South Wales, Sydney, Australia  
 1994–1995 Visiting Associate Professor, Department of Economics, University of Colorado, Boulder  
 07/89 Visiting Professor, Consiglio Nazionale Delle Ricerche, Istituto Di Analisi dei Sistemi ed Informatica, Rome  
 1980–81 Programmer, Programming Research Group, Oxford University Computing Laboratory, Oxford

### Professional Societies

Society for Industrial and Applied Mathematics, Institute for Operations Research and the Management Sciences, Mathematical Optimization Society

### Research Interests

Mathematical Optimization, Modeling and Applications of Operations Research, Complementarity Problems, Energy and Environmental Policy, Optimization in Medicine, Grid Computation, Numerical Algorithms.

### Grants and Patents

Principal Investigator on various research grants from NSF, DOE, AFOSR, NIH, USDA, Microsoft and GAMS Corp. U.S. Patent 6,868,452 “Method for caching of media files to reduce delivery cost”, US Patent 8,615,068 “System and Method for Intensity Modulated Arc Therapy Treatment Planning”.

### Professional Activities

NEOS	Overall control and management (2010–present)
Co-Editor	Mathematical Programming (2001–2011)
Associate Ed.	ACM Transactions on Mathematical Software (2004–18), INFORMS Journal on Computing (2019–present), Journal of Economic Dynamics and Control (2000–08), Mathematical Programming (1997–2001, 2012–2016), Optimization Methods and Software (1992–present), SIAM Journal on Control and Opt. (1992–97), SIAM Journal on Optimization (2002–2015)
Ed. Board Officer	MPS/SIAM Series on Optimization (2003–07) SIAM Activity Group on Optimization, 2008–10 (Chair) Optimization Section of Institute for Operations Research and Management Sciences, 1997–98 (Vice-Chair), 1998–99 (Chair)
Exec. Comm. Member	Physical Sciences Division, University of Wisconsin (2005–08) Beale-Orchard-Hays Prize Comm. (2000, Chair 2012, 2015), Broyden Prize Comm. (Chair 2012–2015), INFORMS Nicholson Prize Comm. (2008, Chair 2009), ICCOPT Steering Comm., Mathematical Programming Society (2008–09), INFORMS Dantzig Thesis Award Comm. (2006–07), INFORMS Optimization Prize (2002), Lanchester Prize Comm. (1998–99, 2015–16), INFORMS Optimization Young Researcher Award (Chair 2017)
Referee	National Science Foundation; Department of Energy; Australian, British, Canadian, Dutch, Israeli, Norwegian and Swedish Research Councils and various prof. journals.

### Conference and Session Organizer

Program Comm. Member: ISMP (2018, 2009), ICCOPT II, SIAM Opt. Conf. (2011 (Chair), 2008, 1999)  
Co-organizer of International Conf. on Complementarity Problems (2014, '12, '05, '02, 1999, '95)  
Organizer: IPAM workshop (2016): Optimization and equilibrium in energy economics  
Cluster chair at ORSA/TIMS and INFORMS meetings; organizer and co-organizer of major workshops and many technical sessions; session chair at numerous local and international meetings

### Advisors and Advisees

Total number of Postdoctoral advisees: 8. N. Bartelt, B. Shapiro, H. Dong, J. Ramakhrisnan, S. Wangen, C. Michini, A. Christensen, O. Huber

Total number of Ph.D. students advised: 13. M. Cao (Industry), S. Dirkse (Industry), S. Billups (University of Colorado), T. Munson (Argonne Natn. Lab.), Q. Chen (Industry), K. Sinapiromsaran (Chulalongkorn University, Thailand), M. Voelker (APL, Johns Hopkins), J.–H. Lim (University of Houston), G. Deng (Industry), Q. Li (Industry), J. Holzer (Pacific Northwest Natn. Lab.), Y. Liu (Wayne State Univ.), Y. Kim (Argonne Natn. Lab.)

Ph.D. and Master’s advisors: E. Anderson, A. Philpott

### Honours and Prizes

2013	Fellow of SIAM
2012	Power and Energy Society: Power System Anal., Comput. and Econ. Prize
2006	Fellow of INFORMS
2006	Carolyn Rosner Excellent Educator Award, Comp. Sci. Dept., Univ. Wisconsin
2004	Sonoco Technology Award, Sonoco Products Company
2002	The William Pierskalla best paper award for research excellence in health care management science, Institute for Operations Research and the Management Sciences
2001-02	Guggenheim Fellowship
1999-01	Vilas Associate Award, University of Wisconsin
1997	Beale-Orchard-Hays Prize for Excellence in Computational Mathematical Programming, Mathematical Programming Society
1994	National Comput. Science Award for Teaching Undergraduates, Dept. of Energy
1991	Presidential Young Investigators Award, National Science Foundation
1986–87	University of Wisconsin–Madison Chancellor’s Award
1986	Rayleigh Prize for Mathematics, Cambridge University
1985	Arthur Shercliff Memorial Prize, Cambridge University
1984–88	Science and Engineering Research Council Award, United Kingdom
1984–85	Churchill College Honorary Scholar, Cambridge University
1984	Wrangler, Mathematics, Cambridge University

### Recent Colloquia

Numerous invited talks at U.S. and foreign universities and professional meetings. Details available at <http://www.cs.wisc.edu/~ferris/ferris.talks>

### Publications

- [1] M. C. Ferris, *Linear Programming and Minimum Weight Design – A Comparison of Methods for Solving a Class of Structural Optimization Problems*. PhD thesis, University of Cambridge, Cambridge, 1985.
- [2] M. C. Ferris, *Weak Sharp Minima and Penalty Functions in Mathematical Programming*. PhD thesis, University of Cambridge, Cambridge, 1988.
- [3] M. C. Ferris and A. B. Philpott, “On the Performance of Karmarkar’s Algorithm,” *Journal of the Operational Research Society*, vol. 39, pp. 257–270, Mar. 1988.
- [4] M. C. Ferris and A. B. Philpott, “An Interior Point Algorithm for Semi-Infinite Linear Programming,” *Mathematical Programming*, vol. 43, pp. 257–276, 1989.
- [5] M. C. Ferris, “Weak Sharp Minima and Penalty Functions in Mathematical Programming,” Tech. Rep. 779, Computer Sciences Department, University of Wisconsin, Madison, Wisconsin, 1988.
- [6] M. C. Ferris, “Finite Termination of the Proximal Point Algorithm,” *Mathematical Programming*, vol. 50, pp. 359–366, 1991.
- [7] M. C. Ferris, “Iterative Linear Programming Solution of Convex Programs,” *Journal of Optimization Theory and Applications*, vol. 65, pp. 53–65, 1990.

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- [8] M. C. Ferris and O. L. Mangasarian, “Finite Perturbation of Convex Programs,” *Applied Mathematics and Optimization*, vol. 23, pp. 263–273, 1991.
- [9] M. C. Ferris, “Parallel Solution of Extremely Large Knapsack Problems,” Tech. Rep. 842, Computer Sciences Department, University of Wisconsin, Madison, Wisconsin, 1989.
- [10] J. V. Burke and M. C. Ferris, “Characterization of Solution Sets of Convex Programs,” *Operations Research Letters*, vol. 10, pp. 57–60, 1991.
- [11] M. C. Ferris and O. L. Mangasarian, “Minimum Principle Sufficiency,” *Mathematical Programming*, vol. 57, pp. 1–14, 1992.
- [12] E. J. Anderson and M. C. Ferris, “Parallel Genetic Algorithms in Optimization,” in *Proceedings of the Fourth SIAM conference on Parallel Processing for Scientific Computing, Chicago, Illinois, December 11-13, 1989*.
- [13] M. C. Ferris and M. Vlach, “Scheduling with Earliness and Tardiness Penalties,” *Naval Research Logistics Quarterly*, vol. 39, no. 2, pp. 229–245, 1992.
- [14] E. J. Anderson and M. C. Ferris, “A Genetic Algorithm for the Assembly Line Balancing Problem,” in *Proceedings of the Integer Programming / Combinatorial Optimization Conference, Waterloo, Ontario, Canada, May 28–30, 1990*, University of Waterloo Press, 1990.
- [15] M. C. Ferris and A. B. Philpott, “On affine scaling and semi-infinite programming,” *Mathematical Programming*, vol. 56, pp. 361–364, 1992.
- [16] J. V. Burke, M. C. Ferris, and M. Qian, “On the Clarke Subdifferential of the Distance Function to a Closed Set,” *Journal of Mathematical Analysis and its Applications*, vol. 166, pp. 199–213, 1992.
- [17] M. Cao and M. C. Ferris, “Genetic Algorithms in Optimization,” *Journal of Undergraduate Mathematics and its Applications*, vol. 12, pp. 81–90, 1991.
- [18] M. C. Ferris and O. L. Mangasarian, “Parallel constraint distribution,” *SIAM Journal on Optimization*, vol. 1, pp. 487–500, Nov. 1991.
- [19] K. Bennett, M. C. Ferris, and Y. E. Ioannidis, “A Genetic Algorithm for Database Query Optimization,” in *Proceedings of the Fourth International Conference on Genetic Algorithms* (R. K. Belew and L. B. Booker, eds.), (San Mateo, California), pp. 400–407, Morgan Kaufmann Publishers, Inc, 1991.
- [20] M. C. Ferris, “Parallel Constraint Distribution in Convex Quadratic Programming,” *Mathematics of Operations Research*, vol. 19, pp. 645–658, Aug. 1994.
- [21] M. C. Ferris and S. Lucidi, “Globally Convergent Methods for Nonlinear Equations,” Tech. Rep. 1030, Computer Sciences Department, University of Wisconsin, Madison, Wisconsin, 1991.
- [22] E. J. Anderson and M. C. Ferris, “Genetic Algorithms for Combinatorial Optimization: The Assembly Line Balancing Problem,” *ORSA Journal on Computing*, vol. 6, pp. 161–173, 1994.
- [23] J. Burke and M. Ferris, “Weak Sharp Minima in Mathematical Programming,” *SIAM Journal on Control and Optimization*, vol. 31, no. 5, pp. 1340–1359, 1993.

- [24] M. C. Ferris and O. L. Mangasarian, “Error Bounds and Strong Upper Semicontinuity for Monotone Affine Variational Inequalities,” *Annals of Operations Research*, vol. 47, pp. 293–305, 1993.
- [25] S. P. Dirkse, M. C. Ferris, P. V. Preckel, and T. F. Rutherford, “The GAMS Callable Program Library for Variational and Complementarity Solvers,” Mathematical Programming Technical Report 94-07, Computer Sciences Department, University of Wisconsin, Madison, Wisconsin, 1994.
- [26] J. Eckstein and M. C. Ferris, “Operator Splitting Methods for Monotone Linear Complementarity Problems,” TMC#23 239, Thinking Machines Corporation, Cambridge, Massachusetts, 1992.
- [27] M. C. Ferris, “The Linear Complementarity Problem,” *Bulletin of the American Mathematical Society*, vol. 28, pp. 169–175, 1993.
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- [29] M. Cao and M. C. Ferris, “A Pivotal Method for Affine Variational Inequalities,” *Mathematics of Operations Research*, vol. 21, pp. 44–64, 1996.
- [30] M. C. Ferris and S. Lucidi, “Nonmonotone Stabilization Methods for Nonlinear Equations,” *Journal of Optimization Theory and Applications*, vol. 81, pp. 53–71, Apr. 1994.
- [31] M. C. Ferris and O. L. Mangasarian, “Parallel variable distribution,” *SIAM Journal on Optimization*, vol. 4, pp. 815–832, Nov. 1994.
- [32] J. V. Burke and M. C. Ferris, “A Gauss–Newton Method for Convex Composite Optimization,” *Mathematical Programming*, vol. 71, pp. 179–194, 1995.
- [33] S. P. Dirkse and M. C. Ferris, “The PATH Solver: A Non-Monotone Stabilization Scheme for Mixed Complementarity Problems,” *Optimization Methods and Software*, vol. 5, pp. 123–156, Jan. 1995.
- [34] S. C. Billups and M. C. Ferris, “Convergence of an infeasible interior-point algorithm from arbitrary positive starting points,” *SIAM Journal on Optimization*, vol. 6, pp. 316–325, May 1996.
- [35] M. C. Ferris and J. S. Pang, “Nondegenerate solutions and related concepts in affine variational inequalities,” *SIAM Journal on Control and Optimization*, vol. 34, pp. 244–263, Jan. 1996.
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- [37] M. Cao and M. C. Ferris, “P\_C Matrices and the Linear Complementarity Problem,” *Linear Algebra and Its Applications*, vol. 246, pp. 299–312, 1996.
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- [58] J. Eckstein and M. C. Ferris, “Smooth Methods of Multipliers for Complementarity Problems,” *Mathematical Programming*, vol. 86, pp. 65–90, 1999.
- [59] F. Tin-Loi and M. C. Ferris, “A Simple Mathematical Programming Method for a Structural Identification Problem,” in *Seventh International Conference on Computing in Civil and Building Engineering (ICCCBE-VII), Seoul, Korea, 19-21 August*, (Korea), pp. 511–518, Techno-Press, 1997.
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- [61] S. P. Dirkse and M. C. Ferris, “Traffic Modeling and Variational Inequalities using GAMS,” in *Operations Research and Decision Aid Methodologies in Traffic and Transportation Management* (P. L. Toint, M. Labbe, K. Tanczos, and G. Laporte, eds.), vol. 166 of *NATO ASI Series F*, pp. 136–163, Springer-Verlag, 1998.
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