Short Vita: Michael Todd

Leon C. Welch Professor,
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Education:
B.A., Mathematics, Cambridge University, England, 1968.
Ph.D., Administrative Sciences, Yale University, 1972.

Professional Experience:
1973-present, Assistant, Associate, and Full Professor, OR&IE,
Cornell University.
1971-1973, Lecturer and Assistant Professor,
Operations Research and Planning, University of Ottawa.

Honors:
Guggenheim Fellowship, John Simon Guggenheim Memorial Foundation, 1980-81.
Sloan Research Fellowship, Alfred P. Sloan Foundation, 1981-85.
George B. Dantzig Prize, Mathematical Programming Society and SIAM, 1988.
John von Neumann Theory Prize, Institute for Operations Research and the
Management Sciences, 2003.
INFORMS Fellow, Institute for Operations Research and the
Management Sciences, 2004.

Special Appointments:
Fields Institute for Research in Mathematical Sciences, Toronto.
Department of Mathematical Sciences, Carnegie-Mellon University.
Cowles Foundation for Research in Economics, Yale University.
OR Center, MIT.
Department of Mathematics, University of Washington.
BellCore.
Department of Applied Mathematics and Theoretical Physics, Cambridge University.
CORE, Leuven, Belgium.

Editorial Positions:
Co-Editor, Editor-in-Chief, Associate Editor: Mathematical Programming,
1980-present.
Associate Editor: Mathematics of Operations Research, 1978-2000.
Associate Editor: Operations Research, 1982-86.
Member of Editorial Board: SIAM Journal on Optimization, 1997-present.
Member of Editorial Board: Foundations of Computational Mathematics,
2000-present.

Grants and Contracts:
NSF, 1974-present.
ONR, 1987-present.
AFOSR, 1990-1993.

Selected Publications:
(1977) Union Jack triangulations, in: Fixed Points: Algorithms and Applications (S. Karamardian, ed.), Academic Press, New York, 315-336.
(1976) On triangulations for computing fixed points, Mathematical Programming 10 322-346.
(1978) Efficient acceleration techniques for fixed-point algorithms (with R. Saigal), SIAM Journal on Numerical Analysis 15 997-1007.
(1980) Traversing large pieces of linearity in algorithms that solve equations by following piecewise-linear paths, Mathematics of Operations Research 5 242-257.
(1980) The monotonic bounded Hirsch conjecture is false for dimension at least four, Mathematics of Operations Research 5 599-601.
(1980) The ellipsoid method: a survey (with R.G. Bland and D. Goldfarb), Operations Research 29 1039-1091.
(1982) An introduction to piecewise-linear homotopy algorithms for solving systems of equations, in: Topics in Numerical Analysis (P.R. Turner, ed.), Lecture Notes in Mathematics 965, Springer-Verlag, Berlin-Heidelberg-New York, 149-202.
(1983) Large-scale linear programming: geometry, working bases and factorizations, Mathematical Programming 26 1-20.
(1985) Linear and quadratic programming in oriented matroids, Journal of Combinatorial Theory (B) 39 105-133.
(1985) The ellipsoid method generates dual variables (with B. Burrell), Mathematics of Operations Research 10 688-700.
(1986) Polynomial expected behavior of a pivoting algorithm for linear complementarity and linear programming problems, Mathematical Programming 35 173-192.
(1989) Linear programming (with D. Goldfarb), in: Handbooks in Operations Research and Management Science, vol. 1: Optimization (G.L. Nemhauser, A.H.G. Rinnooy Kan and M.J. Todd, eds.), North Holland, Amsterdam, 73-170.
(1990) A centered projective algorithm for linear programming (with Y. Ye), Mathematics of Operations Research 15 508-529.
(1991) Probabilistic models for linear programming, Mathematics of Operations Research 16 671-693.
(1993) On the complexity of approximating the maximal inscribed ellipsoid for a polytope (with L.G. Khachiyan), Mathematical Programming 61 137-159.
(1994) An $O(\sqrt{n}L)$-iteration homogeneous and self-dual linear programming algorithm (Y. Ye, M.J. Todd, and S. Mizuno), Mathematics of Operations Research 19 53-67.
(1996) A lower bound on the number of iterations of long-step and polynomial interior-point linear programming algorithms (with Y. Ye), Annals of Operations Research 62 233-252.
(1997) Self-scaled barriers and interior-point methods for convex programming (with Yu. E. Nesterov), Mathematics of Operations Research 22 1–42.
(1999) SDPT3 — a Matlab software package for semidefinite programming, Version 1.3 (K.C. Toh, M.J. Todd, and R.H. Tutuncu), Optimization Methods and Software 11 545–581.
(2001) Semidefinite optimization, Acta Numerica 10 515–560.

Books:
(1976) The Computation of Fixed Points and Applications, Springer-Verlag, Berlin
(1983) Homotopy Methods and Global Convergence, edited with B.C. Eaves, F.J. Gould and H.-O. Peitgen, Plenum Press, New York-London
(1989) Optimization, volume 1 of Handbooks in Operations Research and Management Science, edited with G.L. Nemhauser and A.H.G. Rinnooy Kan, North Holland, Amsterdam
(1990) Mathematical Developments Arising from Linear Programming, Contemporary Mathematics 114, edited with J.C. Lagarias, American Mathematical Society, Providence

Doctoral Students:

D. Strip,	1978
S.A. Awoniyi,	1980
A. Vardi,	1980
C.-M. Ip,	1985
W.D. Morris, Jr.,	1986
J.E. Mitchell,	1988
Y. Wang,	1991
A. Liao,	1991
K.A. McShane,	1992
L. Tuncel,	1993
J.S. Shahabuddin,	1996
R.H. Tutuncu,	1996
R.A. Hauser,	2000
M. Wagner,	2000
E.A. Yildirim,	2001
B.K. Rangarajan,	2004