

CURRICULUM VITAE MIN SUN

EMPLOYMENT

University of Alabama, Dept of Mathematics, Tuscaloosa, AL, 2000-present, Professor

RESEARCH INTERESTS

Global optimization, optimal control, minimax and game, multiobjective programming, modeling and simulation with applications in smart and autonomous home energy managements, water resources management, and magnetic materials research.

SAMPLE CONFERENCE PRESENTATIONS

Second SIAM Conference on Linear Algebra in Signals, Systems & Controls, San Francisco, CA, November 1990.
SIAM Conference on Mathematical and Computational Issues in the Geosciences, Houston, TX, 1993.
Second International Conference on Groundwater Ecology, Atlanta, GA, March 1994.
Third SIAM Conference on Control and Its Applications, St. Louis, MO., 1995.
SIAM Conference on Math Computation in Geosciences, Albuquerque, NM, May, 1997.
The 43rd Annual Conference on Magnetism and Magnetic Materials, Miami, FL, Nov., 1998.
1999 IEEE International Conference on Magnetism, South Korea, June, 1999.
XIII International Conference on Computational Methods in Water Resources, June 2000, Calgary, Canada
46th Annual Conference on Magnetism & Magnetic Materials, Seattle, WA, Nov. 2001.
10th Joint MMM/Intermag Conference, Baltimore, MD, Jan. 2007.
SIAM Conference on Optimization, Boston, MA, May, 2008.
First World Congress on Global Optimization in Engineering & Science, Changsha, China, June, 2009
SIAM Annual Meeting, Pittsburgh, Pennsylvania, July, 2010.
American Mathematical Society Joint Meetings, Baltimore, MD, Jan. 6-10, 2014.
World Congress on Global Optimization, Gainesville, Florida, USA, Feb. 22-25, 2015.
Global Optimization Conference, College Station, TX, March 30, 2017 - April 1, 2017.

SAMPLE COURSES TAUGHT AT UA

Complex Calculus: MA 485
Differential Equations: MA 253
Linear Algebra: MA 255, MA 237
Discrete Mathematics: MA 301
Numerical Mathematics: MA 300, MA 311, MA 511
Probability: MA 355
Statistics: MA 451/551, MA 554
Optimization: MA 321, MA 485/520/420, MA 486/521/421
Optimal Control: MA 530, MA 692
Special Topics in Applied Mathematics: MA 537
Dissertation/Project: MA 495, MA 598, MA 599, MA 698, MA 699

REFEREE

Complex Systems.
Journal of American Water Resources Association.
Mathematics of Operations Research
IEEE Conferences
J. of Global Optimization
Mathematical and Computer Modeling
European Journal of Operations Research
International Conference of Numerical Analysis and Applied Mathematics
Markov Processes and Related Fields
Applied Mathematics and Computation

SAMPLE FUNDED RESEARCH PROJECTS

Augmentation of Optimal Management Policy Selections to Groundwater Transport Model MT3D, funded by U.S. Geological Survey through Alabama Water Resource Research Institute, the principal investigator, total budget \$72,900, 1994.

Efficient Learning Algorithms for Designing Artificial Neural Networks with Application to Groundwater Remediation Problems, the principal investigator, UA SOMED Project, total budget \$16,700, 1995.

Augmentation of Optimal Management Policy Selections to Groundwater Transport Model MT3D, Phase II (Renewed), funded by U.S. Geological Survey through Alabama Water resource Research Institute, the principal investigator, total budget \$77,200, 1995.

Subsurface Contamination Site Characterization Via a Computer-Aided Tool, as the principal investigator, funded by U.S. EPA through Gulf Coast Hazardous Substance Research Center, total budget \$69,000, 1998.

Modeling and simulation in micromagnetics research, as the principal investigator, funded by NSF through Center for Materials for Information Technology, total budget \$23,800, 1999.

Subsurface Contamination Site Characterization Via a Computer-Aided Tool, Phase II, as the principal investigator, U.S. EPA's Gulf Coast Hazardous Substance Research Center, total budget \$69,370, 1999-2000.

Integrating Physics and Numerical Mathematics for Characterizing Magnetic Sensor Materials and Analyzing Magnetic Force Microscope Images, as the Principal Investigator, NSF, \$155,063, 2001.

SAMPLE PUBLICATIONS

M. Sun, Singular control problems in bounded intervals, *Stochastics*, 21(1987), 303-344.

M. Sun, Singular stochastic control problems solved by a sparse simplex method, *IMA J. of Math. Control and Inf.*, 6(1989), 27-38.

M. Sun, Monotonicity of Mangasarian's iterative algorithm for generalized linear complementarity problems, *J. of Mathematical Analysis and Applications*, 144(1990), 474-485.

M. Sun, Domain decomposition algorithms for solving Hamilton-Jacobi-Bellman equations, *Numer. Funct. Anal. & Optimiz.*, 14(1993), 145-166.

M. Sun, Alternating direction algorithms for solving Hamilton-Jacobi-Bellman equations, *Applied Math. Optim*, 34(1996), 267-277.

M. Sun (with C. Zheng), Long term groundwater management by a MODFLOW based dynamic optimization tool, *J. of American Water Resources Association*, 35(1999),99-111.

M. Sun (with T. Zhao et. al.), Reconstruction of in-plane magnetization distributions from magnetic force microscope images, *J. Appl. Phys.*, Vol. 89, 7230 (2001).

M. Sun (with H. Fujiwara), Data Driven Function Approximation Models for Simulating Magnetic Hysteresis, *J. Appl. Phys.*, 2002.

M. Sun (with H. Fujiwara et al.), Magnetization behavior of synthetic antiferromagnet and toggle-magnetoresistance random access memory (MRAM), *Tran. Magn. Soc. Japan*, 4(2004),121-129.

M. Sun (with A. W. Johnson), Interval Branch and Bound with Local Sampling for Constrained Global Optimization, *J. of Global Optimization*, 33(2005), 61-82.

M. Sun (with D. Bunnag) Genetic Algorithm for Constrained Global Optimization in Continuous Variables, *Applied Mathematics and Computation*, 2005.

M. Sun (with Xiaoli Yang) Theoretical Convergence Analysis of a General Division-Deletion Algorithm for Solving Global Search Problems, *J. of Global Optimization*, 37(2007), 27-45.

M. Sun, A fast memoryless interval algorithm for global optimization, *J. of Global Optimization*, DOI 10.1007/s10898-009-9472-5, (2009).

M. Sun (with Congxiao Liu, Matthew E. Edwards, and J. C. Wang), Effect of Anisotropy Asymmetry on the Switching Behavior of Exchange Biased Bilayers, *Applied Mathematical Sciences*, 5(2011), 2195-2206.

M. Sun (with M. Ying), Some Feasibility Sampling Procedures in Interval Methods for Constrained Global Optimization, *J. of Global Optimization*, DOI: 10.1007/s10898-015-0362-8, Springer (2015).

M. Sun (with D. Zhang, S. Li, and Z. O'Neill), An Optimal and Learning-Based Demand Response and Home Energy Management System, *IEEE-Transactions on Smart Grid*, 7(2016), 1790-1801.