Example Annotated Bibliography*

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Semismooth Functions and Algorithms for Them

1. R. Mifflin, "Semismooth and semiconvex functions in constrained optimization," *Siam Journal on Control*, vol. 15, pp. 957–972, 1977.

   This is the first appearance in the literature of the concept of a semismooth function. Semismooth functions are closed under addition and composition, and also guarantee the local convergence of nonsmooth generalizations of Newton's method.

2. J. V. G. de Araujo, "A statistically based procedure for calibration of water distribution systems," Ph.D. dissertation, Oklahoma State University, Stillwater, Oklahoma, May 1992.

   This Ph.D. thesis discusses a statistically based calibration method for water distribution systems. The author gives an in-depth analysis of the calibration procedure discussing analytical methods, optimization methods, and uncertainty analysis for estimating demands and C-factors. A linear regression technique for estimating the C-factors is discussed. Also,

*Based on an example annotated bibliography by Stephen C. Billups of University of Colorado Denver. We've added sections and the ability to control the order the sources are listed. We've also changed the bibliography style to use IEEEannot to fix some display bugs. See `http://math.ucdenver.edu/~billups/courses/ma5779/annotated_bibliography.html` for the original.

a procedure for transferring uncertainties in input data to the parameter estimation is explained.

3. E. J. Anderson, "A new primal algorithm for semi-infinite linear programming," in *Proceedings of an International Symposium on Infinite Dimensional Linear Programming, Cambridge, September 1984*, E. J. Anderson and A. B. Philpott, Eds. Berlin: Springer-Verlag, 1985

4. S. C. Billups and L. T. Watson, "A probability-one homotopy algorithm for nonsmooth equations and mixed complementarity problems," University of Colorado at Denver, Denver, Colorado, UCD/CCM Report No. 165, September 2000.

   This paper extends the probability-one homotopy algorithm of Chow-Yorke and Li, which solves C^2 systems of equations. The resulting algorithm is capable of solving semismooth systems of equations. The basis of the algorithm is to "smooth" the nonsmooth system of equations using a smoothing parameter that is a function of the homotopy parameter.

Approaches using Genetic Algorithms

1. D. A. Savic and G. A. Walters, "Genetic algorithm techniques for calibrating network models," University of Exeter, Tech. Rep. 95/12, 1995.

   Savic seems to have spent much time and effort in using genetic algorithms in water system design. In this paper he discusses genetic algorithms and gives a brief overview, he discusses how he used a genetic algorithm to calibrate a small water system. He talks about what he was trying to find (c-factors and demands) and how he used a genetic algorithm to do this.

2. G. Winter, J. Periaux, M. Galan, and P. Cuesta, *Genetic Algorithms in Engineering and Computer Science*. Chickester, England: John Wiley and Sons, 1995.

   This book contains a general overview of genetic algorithms as well as a few other topics such as neural networks. The

book also talks about many applications of genetic algorithms and how researchers slightly changed from standard genetic algorithms by using different crossover techniques different mutations etc. It also discusses using Fuzzy logic in a genetic algorithm and gives techniques to finding the best sample size and mutation probability.