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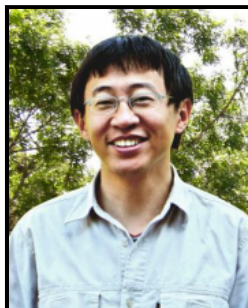
Events

Current Events
Lectures▼
Events Archive▼

Computational Mathematics Seminar Series

An Affine-scaling Method for Nonlinear Optimization with Continuous Knapsack Constraints

Hongchao Zhang, Louisiana State University

Johnston Hall 338
October 27, 2009 - 03:00 pm

Abstract:
In this talk, I will talk about an affine-scaling algorithm ASL for optimization problems with a single linear equality and box constraints. The algorithm has the property that each iterate lies in the relative interior of the feasible set. The search direction is obtained by approximating the Hessian of the objective function in Newton's method by a multiple of the identity matrix. The algorithm is particularly well suited for optimization problems where the Hessian of the objective function is a large, dense, and possibly ill-conditioned matrix. The global and local convergence properties of this algorithm will be also discussed. Numerical comparisons will be reported using Support Vector Machine test problems.

Speaker's Bio:
Hongchao Zhang is an assistant professor in the Department of Mathematics and Center for Computational & Technology (CCT) at Louisiana State University. He obtained Ph.D. at 2006 in the Math Department at University of Florida and M.Sc. in 2001 in Academy of Mathematics and System Science (AMSS), Chinese Academy of Sciences. Then, he had two years Post-Doctoral research at Institute for Mathematics and its Applications (IMA) at University of Minnesota and IBM TJ Watson Research Center .

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