Affine Invariant Stochastic Optimization

José Vidal Alcalá-Burgos, CIMAT Mérida

Abstract: The fast and accurate optimization of noisy functions is a challenging problem with a wide range of applications. We will present recent developments in the valuation of financial instrument and machine learning parameter estimation. The unifying theme is a stochastic optimization algorithm, with a built-in approximation of the inverse Hessian matrix of the objective function. Most of the computational work on each step of this algorithm is plain matrix-vector multiplication, and therefore full parallelization using a GPU is feasible.