ABSTRACT

This master paper exploits the particle filter for extraction of the unobserved latent variables and estimation of parameters of a jump-diffusion process that aims to explain the dynamics of the option market, specifically, the option on the S&P500 index and Volatility Index, by a maximum-likelihood approach. The particle filter adapts Sampling Importance Sampling with Auxiliary proposal, utilizes a continuous likelihood evaluation approach and employs the Covariance Matrix Adaption Evolution Strategy for non-convex optimization.