

99 學年度大四工工專題摘要

第十三組	Research on Constrained Simulation Optimization: Algorithm and Application
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摘 要	
In general, linear programming can deal with normal problem with ordinary mathematic model like simplex method. It doesn't need to make special effort to apply nonlinear programming which is especially complex. But if there existed a model which can be inputted independent variables and it's output would have unpredictable error, and furthermore all we can observe are output and input but nothing. At this moment general linear programming can't deal with such problem. As a result, we draw support from nonlinear programming. 1.We apply Nelder-Mead Algorithm as main part of our nonlinear programming, and because it can't solve the models with constraint, we apply SUMT(sequential unconstrained minimization technique) as auxiliary method. 2.For reducing the error from sampling, we observe output with the same input repeatedly 3.For reducing the influence form the sampling error, we apply the concept of hypothesis to our sample for its availability. 4.Besides we do some improve with our algorithm to make our process of solution more accurate. For portfolio as an example, redefine value of risk and solve with MV(mean-variance) model. Our algorithm can solve the model with nonlinear constraint more efficiently while ordinary algorithm has difficult with such situation. At last we even can analyze the influence between different constraints or parameters to map out the best portfolio scheme.	