



THE UNIVERSITY OF CHICAGO

Department of Statistics

DISSERTATION PROPOSAL

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Risk Averse Control with Mixture of Gaussian Noise

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ABSTRACT

Stochastic control deals with problems of minimizing expectation under certain constraints. One of the most important stochastic control problems is linear-quadratic-Gaussian problems. While this focuses on minimizing the expectation, sometimes risk is also needed to be taken into consideration. And we need to find a trade-off between the expectation and the risk. In this talk, we will focus on risk averse control with mixture of Gaussian noise. And we will talk about two approaches, asymptotic distribution approach and perturbation approach. Asymptotic distribution approach makes use of asymptotic distribution of quadratic forms to calculate the gradient of objective function in the optimization. Perturbation approach changes the objective function but keeps the control not far away from the optimal. We will also talk about potential future works in the end.