Possible Project 1

Consider the stochastic control problem:

$$dX = (b(X) + u_t)\, dt + \sigma(X)\, dW,$$

where u is the control to be determined.

- Have a review of the usual stochastic control problem where u is solved to minimize some target cost. This should involve the so-called Bellman equation.

- In most algorithms, only the first order derivative of the cost function is used. Explore whether it is possible to use the second order derivative information, like the one in the paper "A Stein variational Newton method".