### Particle MPC with chance constraints [1]

Problem setup is is precisely along the lines of what we originally intended, albeit on a convex problem. However, it goes not allow for the control input to be a function of state as well as time. AFAIK, there is no mention of this limitation or possible solutions for it.

### Particle Methods for Change Detection, System Identification, and Control [2]

Particle methods for maximum likelyhood estimation. Some involve computing gradients from said samples.

## Altitude Control System

The high altitude balloon platform uses a valve system to vent lifting gas and a ballast system to drop small bb pellets to change the net lift of the balloon.

# References

[1] Lars Blackmore, Masahiro Ono, Askar Bektassov, and Brian C Williams. A probabilistic particle-control approximation of chance-constrained stochastic predictive control. *IEEE transactions on Robotics*, 26(3):502–517, 2010.

[2] Christophe Andrieu, Arnaud Doucet, Sumeetpal S Singh, and Vladislav B Tadic. Particle methods for change detection, system identification, and control. *Proceedings of the IEEE*, 92(3):423–438, 2004.