**Oct 2 meeting**

**Main idea: Turn our problem to continuous control with quadratic cost.**

**Problem: Gradient FOC and derivative.**

**To do: (1) Finish plotting Var(SOCt) to get idea of I\_max.. or Var(SoC\_t+delta – SoC\_t)/delta\_t to get idea of B\_t. Still need to find max SOC to get SOC\_max**

**(2) Consider continuous control: Bt = B\_min ^ (-Xt) ^B\_max. Solve inf (X-B)^2+ Vt+1. Use gp with FOC (plus constraints).First, consider uncontrolled Bt. Look at value function. Use HJB (add constraints to optimal control )with deep learning. Compare optimal value function. Graph with respect to B\_max, I\_max necessary from above.**

**(3) Consider instead of minimizing B. Minimizing E = X+B . Look at optimal V as a function of I and see how it is. Ideally smooth in middle, 0 in ends**

**(4) Read Impulse control paper. HJB with control constraints paper.**

**Issues: FOC how to solve. (Numerical methods or NN) simply bite force grid search.**

**NN behaving weird (Describe NN algorithm)**

**HJB solution coincide with dp**

**Oct 9: Look at pictures I took plus assignment on NN code.**