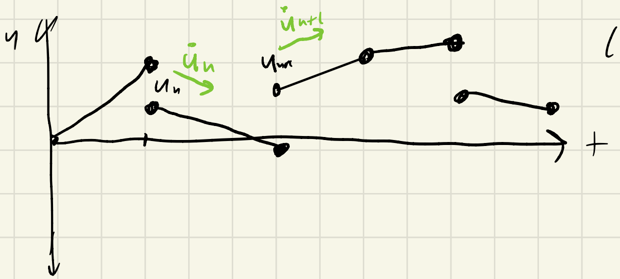
$$\dot h = -B \times u = \ddot h = -B \times \dot u - \dot B \times u$$

$$V = \frac{1}{2} h^T h \Rightarrow \dot V = h^T \dot h \Rightarrow \ddot V = h^T \ddot h + \dot h^T \dot h$$

$$\dot V = -h^T \hat B u \quad , \quad \ddot V = u^T \hat B^T \hat B u - h^T [\hat B \dot u + \hat{\dot B} u]$$

$$\boxed{\begin{aligned} &\min_{u, \dot u} \; -h^T \hat B u \\ &\text{s.t.} \quad u^T \hat B^T \hat B u - h^T [\hat B \dot u + \hat{\dot B} u] \le \varepsilon \\ &\qquad u_{min} \le u \le u_{max} \end{aligned}}$$

* make $u(t)$ piecewise linear:




(not necessarily continuous)

* Barbalat's lemma requires $\ddot V$ bounded, so techically $\varepsilon$ can be anything. I would probably just choose $\varepsilon = 0$ since you can always satisfy that by choosing $u = 0$