$(90-\theta) = AOA$

θ

Lift

$$V.F. = 4\,T\cos\theta \longrightarrow \text{vertical force}$$

$$H.F. = \frac{4\,T\sin\theta}{} \longrightarrow \text{Horizontal force}$$

$\hookrightarrow \underline{V}$

$C_{\ell}(0) = 0.67$

$$L = \frac{1}{2}\,\rho\,V^{2}\,S\,C_{\ell} \nearrow$$

$$L = \frac{1}{2}\,\rho\,V(\theta)^{2}\,S\,C_{\ell}(90-\theta)$$

Optimal Thrust variation for smooth tilting

$$L = W$$

$$4\,T\cos\theta + \left[\frac{1}{2}\,\rho\,V(\theta)^{2}\,S\,C_{\ell}(90-\theta)\right] = W$$

$$\boxed{T \quad vs \quad \theta}$$