

$$C = \sum w_k \cos(\mu_k) = 11.196$$

$$S = \sum w_k \sin(\mu_k) = 19.392$$

$$\theta_{cmd} = \text{atan2}(S, C) = 60.0^\circ$$

$$\theta_{act} = \text{atan2}(a_y, a_x) = 18.4^\circ$$

$$\Delta_c = \cos(\theta_{cmd}) - \cos(\theta_{act}) = -0.449$$

$$\Delta_s = \sin(\theta_{cmd}) - \sin(\theta_{act}) = 0.550$$

$$r_{X^-} = -0.449, \quad r_{X^+} = 0.449$$

$$r_{Y^-} = 0.550, \quad r_{Y^+} = -0.550$$

