

$$J \cdot \frac{d\omega_{el}}{dt} = \frac{3p}{2} \cdot (\Psi_p i_q + (L_d - L_q) i_d i_q) - M_L$$

$$L_d \frac{di_d}{dt} = R_s i_d - U_d + \omega_{el} L_q i_q$$

$$L_q \frac{di_q}{dt} = R_s i_q - U_q + \omega_{el} L_d i_d + \omega_{el} \Psi_p$$

$$\frac{d\theta}{dt} = \omega_{el}$$