## Model

Pieter F

## Torque caused by motor thrust

 $(n-n_h) + \ldots \$  \\\approx\;& \left(\frac{-mg}{4} + 2 C\_T \rho n\_h D^4 \left(n\_i-n\_h\right)\right) \begin{pmatrix} \\ \\  $\ \end{pmatrix} \left(\frac{-mg}{4} + 2 C_T \rho_b n_h D^4 \left(n_1-n_h\right)\right) \ \end{pmatrix} \ \frac{L}{\sqrt{2}} \left(\frac{1}{1} \right) \ \end{pmatrix} \ \end{pmatrix}$  $0\end{pmatrix} \left(\frac{4} + 2 C_T \rho_n D^4 \left(\frac{1}{n_1-n_h}\right)\right) \end{pmatrix} \right) \\$  $1 \land 0\end\{pmatrix\} \land pmatrix\} \land pmatrix$  \ pmatrix\} \land pmatrix\} \land pmatrix\} \land pmatrix \ pmatrix\} \land pmatrix \ pmatrix\} \land pmatrix \  $:=\$   $\frac{1}{\sqrt{2}} \cdot \frac{2}{1} \cdot \frac{1}{1} \cdot \frac{1}{$ \vec{M\_3} \;=\&\frac{L}{\sqrt{2}} \begin{pmatrix}-1 \\ -1 \\ 0\end{pmatrix} \times \begin{pmatrix}0 \\ 0 \\ 1\end{pmatrix} \left(\frac{-mg})  $\{4\} + 2 C_T \cdot h^4 \cdot h^$  $0\end{pmatrix} \rightarrow \hdots + \frac{L}{\sqrt{2}} 2 C_T \rightarrow \hdots + \frac{2}} 2 C_T \rightarrow \hdots + \frac{2}}{2} 2 C_T \rightarrow \hdots + \frac{2}} 2 C_T \rightarrow \hdots + \frac{2}} 2 C_T \rightarrow \hdots + \frac{2}}{2} 2 C_T \rightarrow \hdots + \frac{2}} 2 C_T \rightarrow \hdots + \frac{2}}{2} 2 C_T \rightarrow \hdots + \frac{2}}{2}$ C\_T \rho n\_h D^4 n\_2 \begin{pmatrix}1 \\ -1 \\ 0\end{pmatrix} \\ & + \frac{L}{\sqrt{2}} 2 C\_T \rho n\_h D^4 n\_3 \begin{pmatrix}-1 \\ 1 \\  $D^4 \left( \frac{1}{n_1} - \frac{1}{n_2} - \frac{1}{n_3} - \frac{1}{n_4} \right) - \frac{1}{n_2} - \frac{1}{n_3} - \frac{1}{n_4} \left( \frac{1}{n_2} - \frac{1}{n_3} - \frac{1}{n_4} \right) - \frac{1}{n_3} - \frac{1}{n_4} \left( \frac{1}{n_3} - \frac{1}{n_4} \right) - \frac{1}{n_3} - \frac{1}{n_4} \left( \frac{1}{n_3} - \frac{1}{n_4} \right) - \frac{1}{n_4} \left( \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} \right) - \frac{1}{n_4} \left( \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} \right) - \frac{1}{n_4} \left( \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} \right) - \frac{1}{n_4} \left( \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} \right) - \frac{1}{n_4} \left( \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} \right) - \frac{1}{n_4} \left( \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} \right) - \frac{1}{n_4} \left( \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} \right) - \frac{1}{n_4} \left( \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} - \frac{1}{n_4} \right) - \frac{1}{n_4} \left( \frac{1}{n_4} - \frac{1}{n_4}$  $\=\$  \\\ Leftrightarrow\;&\n{-1}\\\ \\_{xx}^{-1} & 0 \\ Leftrightarrow\;&\\. & 0 \\ 0 & I\_{yy}^{-1} & 0 \\ 0 & 0 & I\_{xx}^{-1} \end{pmatrix} 4\sqrt{2} L C\_T \rho n\_h D^4 \begin{pmatrix} n\_x \\ n\_y \\ 0 \end{pmatrix} \\  $\label{light} $$\left(\frac{1}{x}\right) \left(\frac{1}{x}\right) \left(\frac{1}{x}\right)$ n\_h D^4} {I\_{yy}} \end{align}

## Torque caused by ???

$$\begin{align} k_3^z \hline 1_{zz} \end{align} \line 1_{zz} \end{align}$$

## Torque caused by inertia of the motors and propellers

Complete			