Monkey Competition

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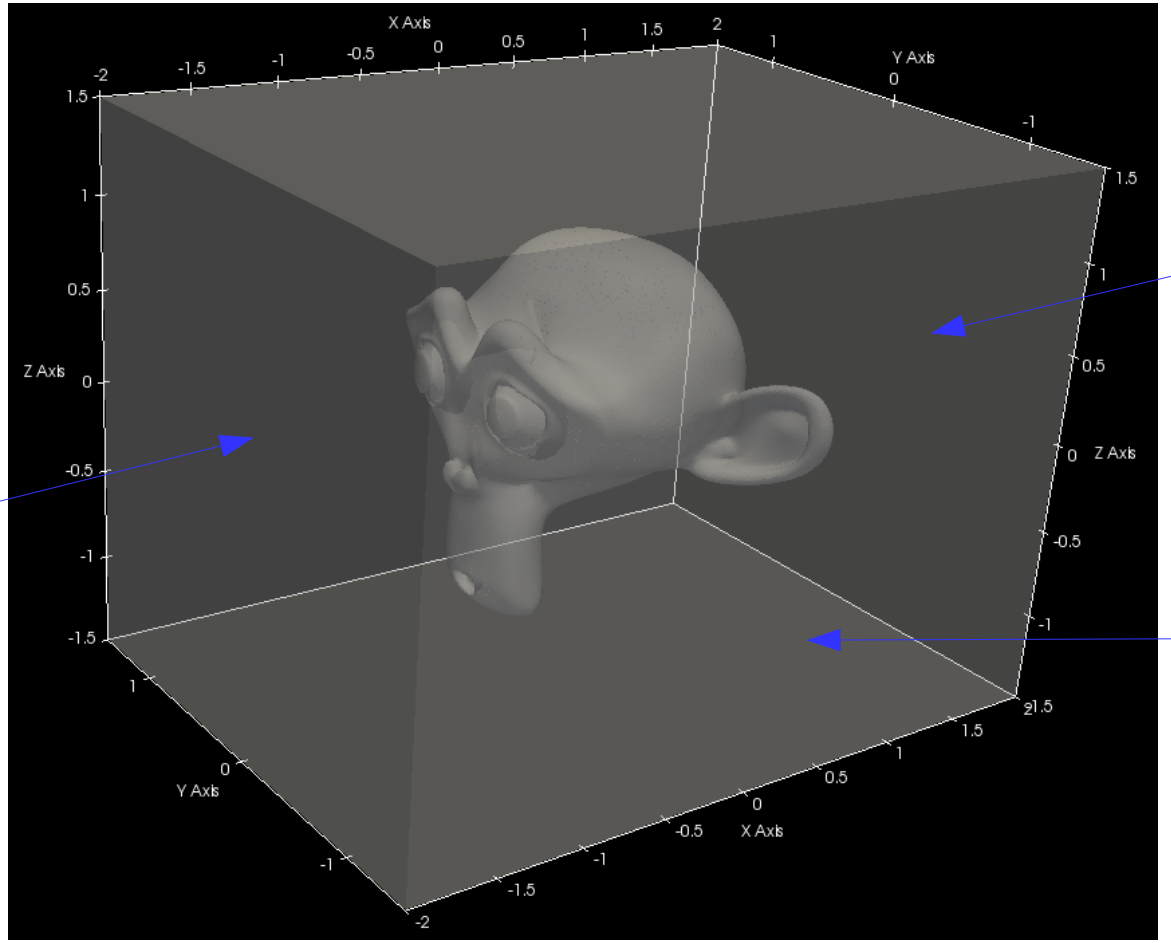
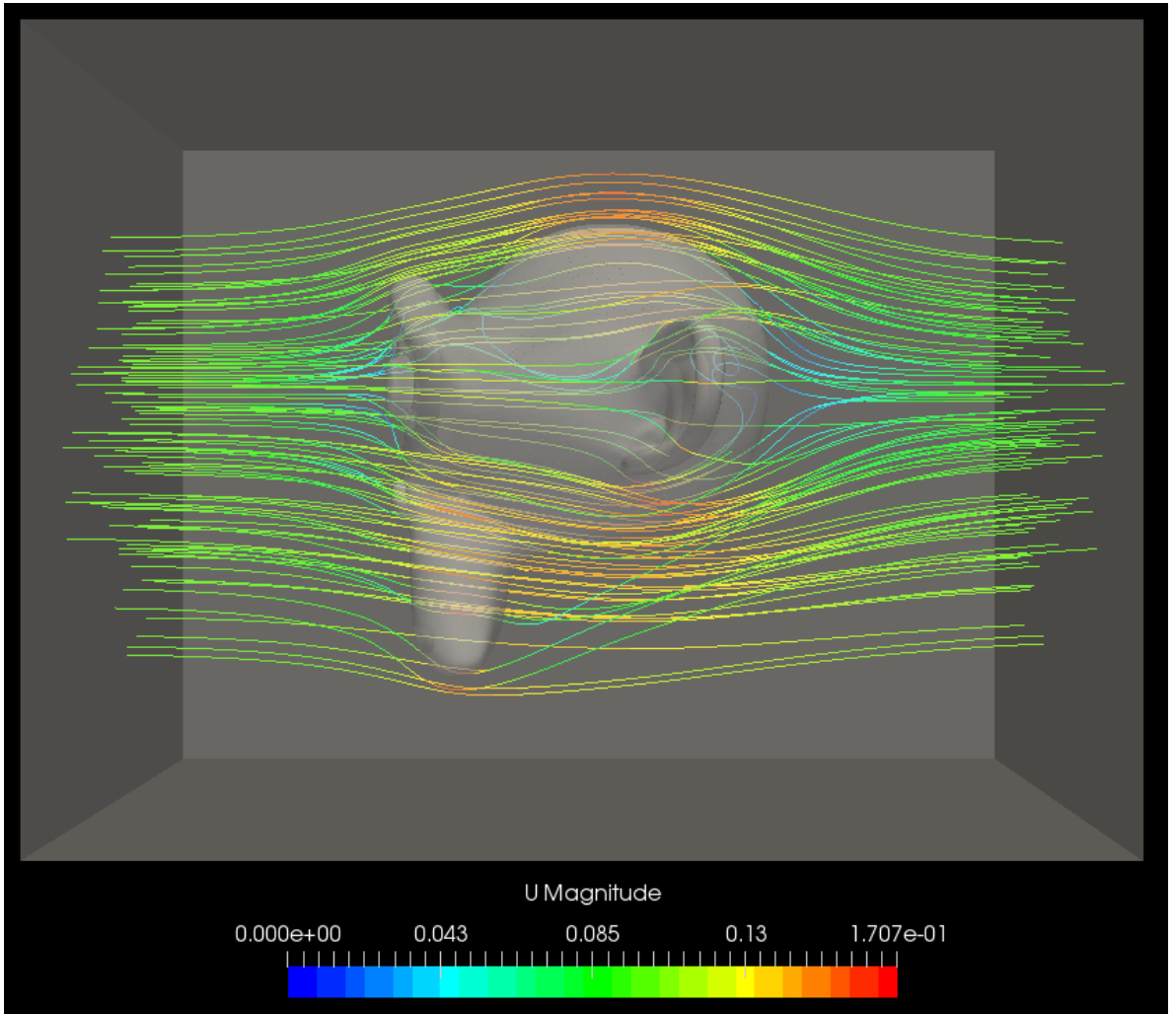
Model Setup



Refer to the figure above for dimensions
Use PisoFoam as the solver | k-Epsilon model for turbulent closure
The liquid properties are set as Water | The initial velocity is 0.1 m/s
Use existing OpenFOAM libraries to calculate Drag coefficient

Download the full setup from:
https://drive.google.com/open?id=1PcXG0r_dlBy8Ta5JMpCcnAUs5E_MfZ3_

Stream Lines

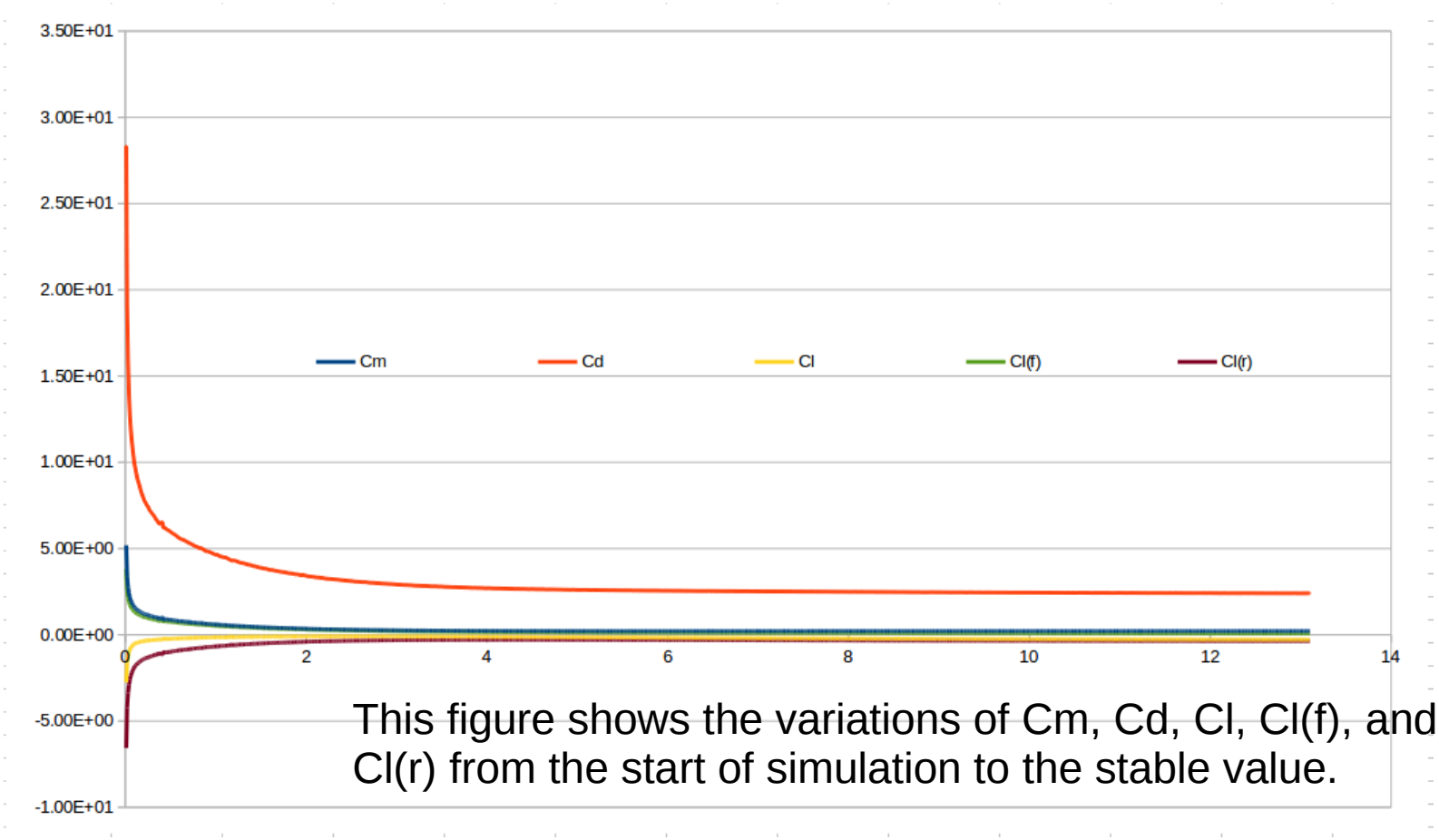


This figure shows the stream lines of the liquid passing through the monkey head

AND

The velocity distribution in these stream lines

Coefficients



When coefficients become stable
Cm = 0.22
Cd = 2.41
Cl = -0.279
Cl(f) = 0.08
Cl(r) = -0.36

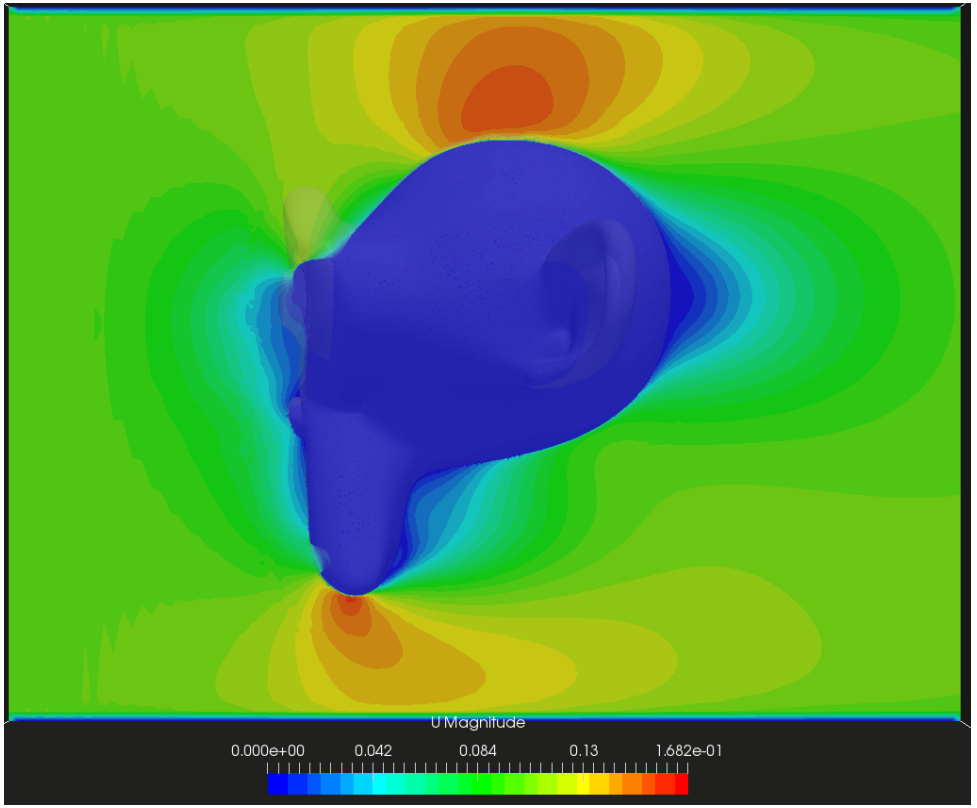
This figure shows the variations of Cm, Cd, Cl, Cl(f), and Cl(r) from the start of simulation to the stable value.

Where:
Cm is total moment coefficient | Cd is total drag coefficient
Cl is total lift coefficient | Cl(f) is total front lift coefficient
Cl(r) is total rear lift coefficient

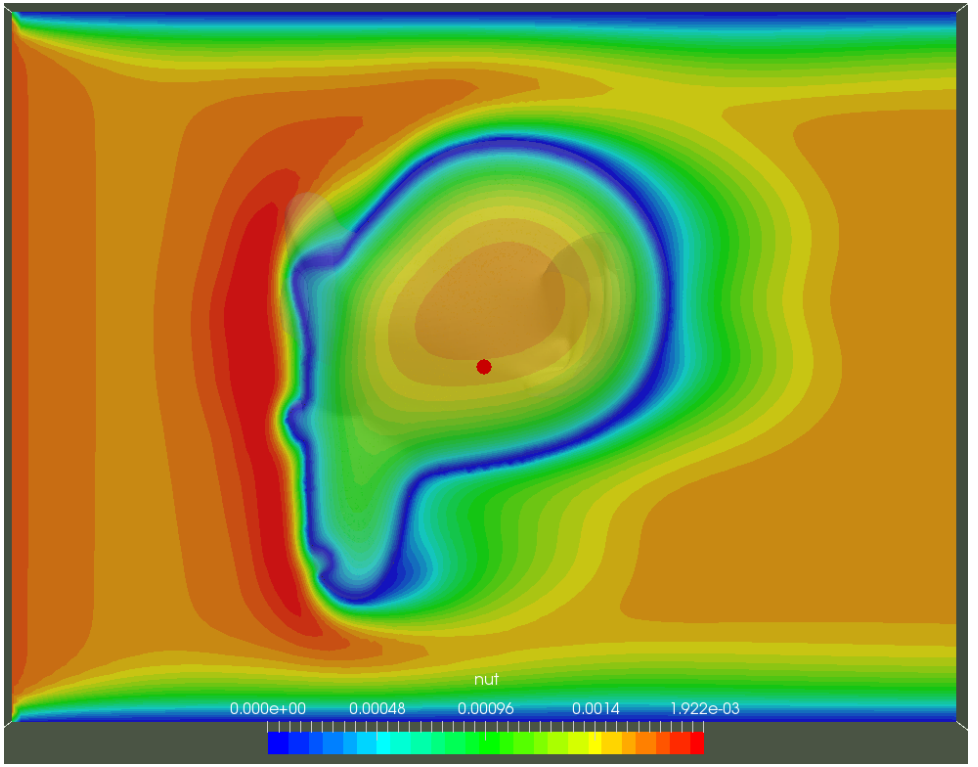
Download the full data:
https://drive.google.com/file/d/141AXCjxKBE7Fs4MoJN1XFGN6zlYvMHW4/view?usp=sharing

Velocity and Turbulent Viscosity

The following images show the distributions of Velocity and Turbulent Viscosity on the panel that crosses the monkey head center.



Velocity distribution



Turbulent Viscosity Distribution