CONFLUENCES IMFT

Institut de Mécanique des Fluides
2 Allée du Pr Camille Soula, Toulouse

Jeudi 27 Février à 10h30 - Amphithéâtre Nougaro

Dans le cadre du chantier RTRA-DATANOOS

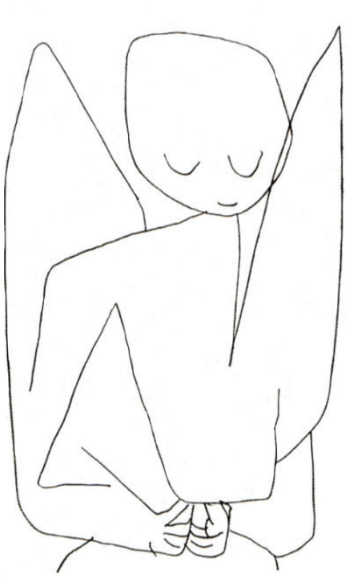
Petros Koumoutsakos
Chair for Computational Science - ETH - Zürich

Angels and Insects:
Natural and Artificial Intelligence in Fluid Dynamics

Complexity or precision? Accuracy or efficiency?

Correct answers are the hallmarks of good engineering design.

In answering these questions engineers often seek inspiration from Nature, it is no coincidence that aircraft wings are similar to those of a bird.

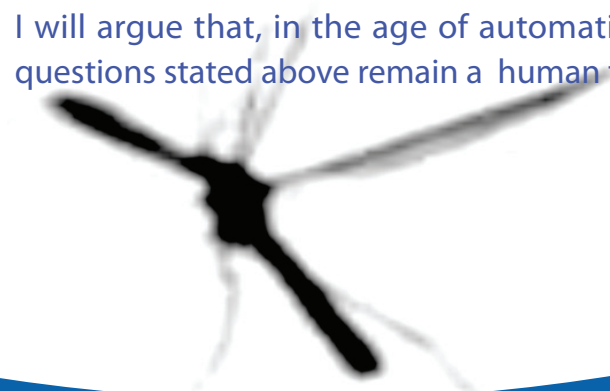


Are Engineers then nothing more than Tinkerers, with Nature being the Master of them all? Computers, sensors, actuators and the ever expanding artificial intelligence may shed new light to this question.

Today engineers not only design by imitating natural forms, but also by deploying Nature's algorithms of information processing. In this talk I will give examples of this process in research projects in our lab.

I will discuss randomized algorithms for the multi-objective designs of turbines and the energy efficiency of fish schools as discovered by deep reinforcement learning.

I will argue that, in the age of automation, decisions to the questions stated above remain a human task.



Service communication IMFT

Contact : sig_communication@imft.fr
Institut de Mécanique des Fluides - 2, Allée du Pr Camille Soula, 31400 Toulouse.