

CISS

Chisachi KATO LAB.

[Numerical Simulation of Unsteady Fluid Flows] [Research on Energy Conversion Systems]

Centre for Research on Innovative Simulation Software

Fluid Flow and Thermal Systems Control

Department of mechanical engineering

<http://ckatolab.iis.u-Tokyo.ac.jp/>

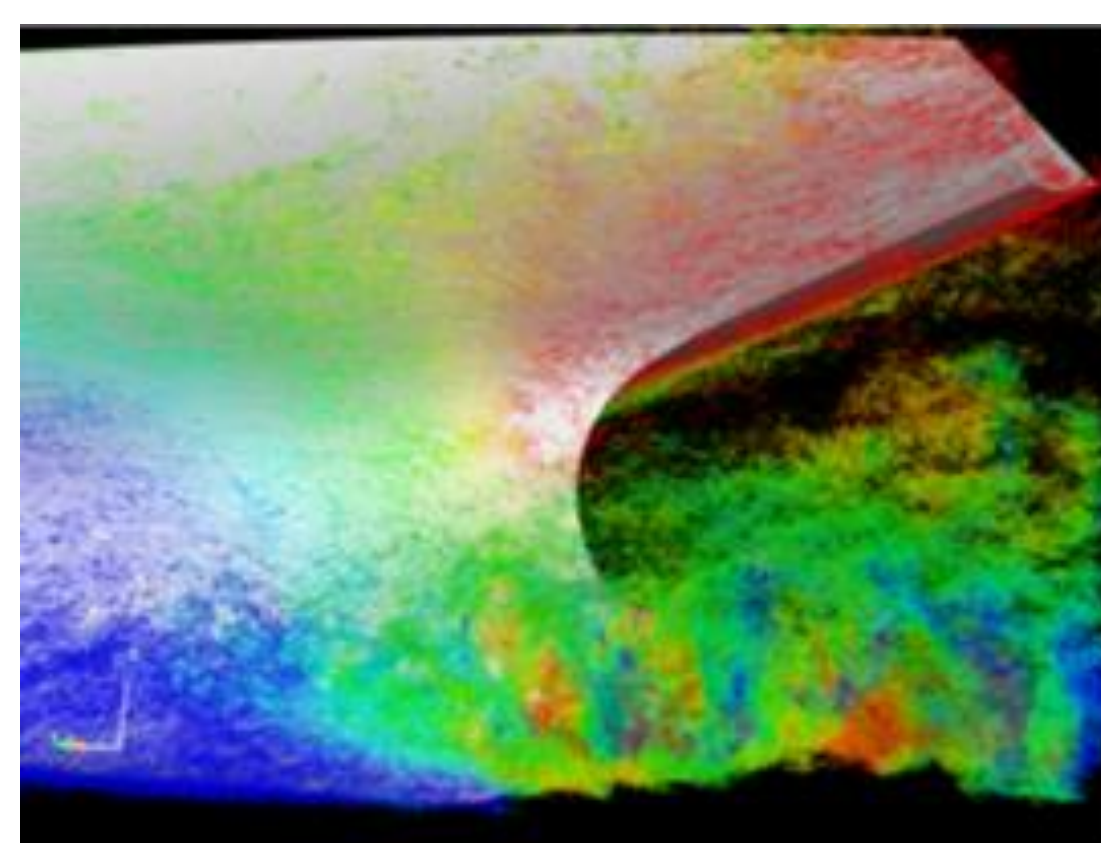
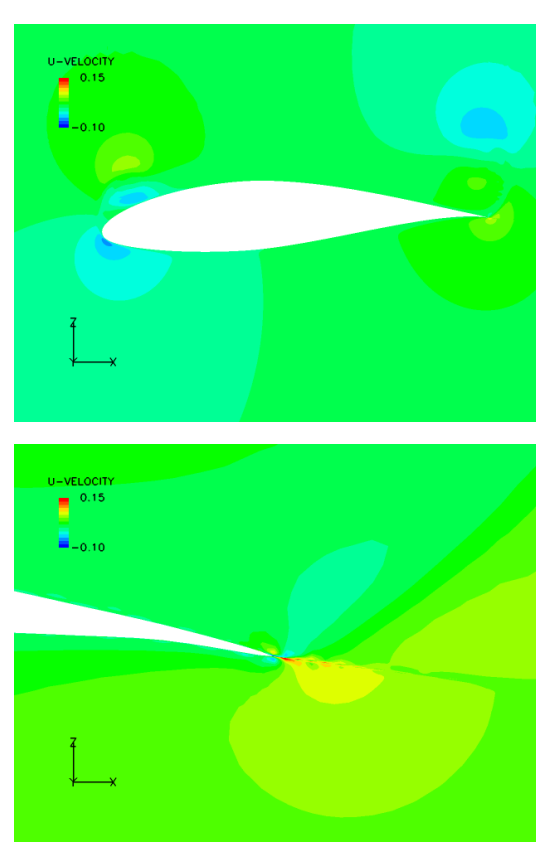
Our research areas include the following.

- 1) Development of simulation methods for predicting flow and flow-induced noise in turbomachinery, automobiles, and ships as well as advancement of R&D in related applications.
- 2) Finding solutions to the problems in achieving large-scale parallel computations that use tens of trillions of grids for next-generation computing environments.
- 3) Use of the simulation software previously developed via a collaboration among the manufacturing industry, academia, and the government for a joint research aimed at improving the performance and reliability and lowering the noise in various flow-related products.

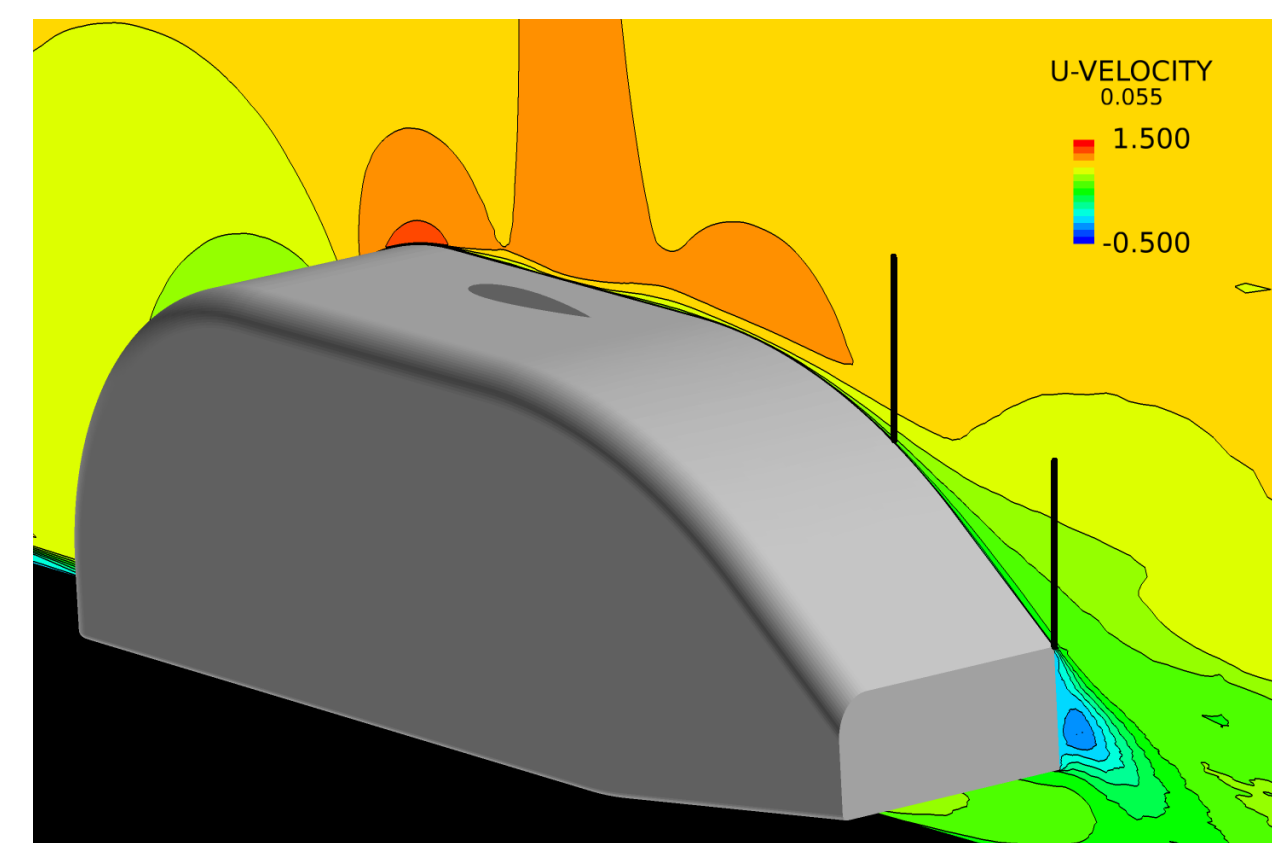
Moreover, in research related to energy, We focus on the following aspects: new types of windmills capable of generating power with low noise and advanced noise and with cavitation models and ultra micro-scale gas turbines even in locations with relatively low-wind speeds.



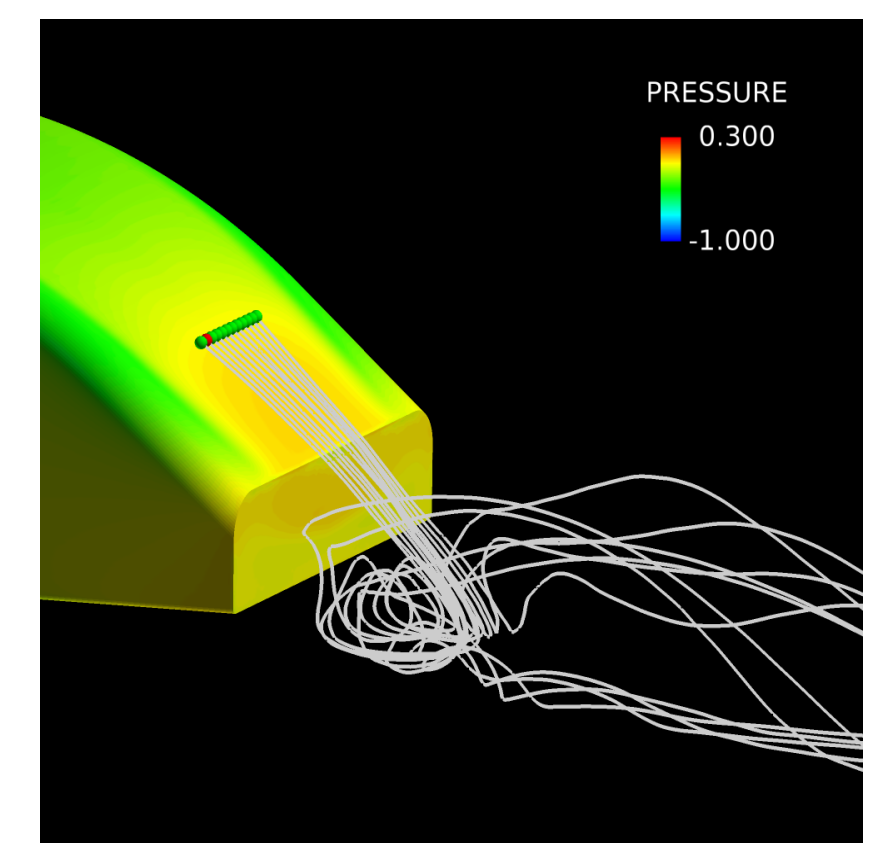
NREL5MW windmill and velocity
Distributions around wings.



Flow field around a ship



Pressure distribution around a car



Stream lines behind a car