From: Lars Davidson, CFD-Sweden, 26/01/2023
Subject: 3-day online course 'Large-Eddy Simulation, Detached-Eddy Simulations and Machine Learning using a Python CFD code'
Date: 3, 5, 7 July 2023
Details: Most engineers and many researchers have limited knowledge of what a LES/DES CFD code is doing. Furthermore they don't know how to use Machine Learning for model development.

The object of this course is to close that knowledge gap. During the course, the participants will learn and work with an in-house LES/DES code called pyCALC-LES, written by the lecturer. It is a finite volume code written in Python. It includes two 0-equation SGS models (Smagorinsky and WALE) and two 2-equation DES models (the PANS model and the k-omega DES model).

The Machine Learning model that will be used is Support Vector Regression (SVR). It is a Python module. SVR will be used for improving wall functions and turbulence models. All discretized equations in pyCALC-LES may be solved on the GPU if the computer has an Nvidia compatible graphics card (the GPU has been found to be more than four times faster on large grids).

The course includes lectures (12 hours) and workshops (12 hours) learning and working on Machine Learning and turbulence modeling in pyCALC-LES.

The number of participants is limited to 16. The course fee is 14 700 SEK (approx 1350 Euro).

For registration and more information, see http://www.cfd-sweden.se/.