

This folder contains data and methods required to recreate the OpenFOAM simulations presented in this paper.

OF_workflow.pdf:

This file contains 3 images depicting various stages of the micromodel simulation development. The first image shows the construction of the cylinders in Blender which were exported as a .obj file. The second image shows the geometry constructed after running snappyHexMesh in OpenFOAM. The rectangles here correspond to the resolution of the simulation. The third image named shows the full flow field after running the SimpleFoam solver.

OF_sample_case:

This folder (uploaded as a series of files here) contains a sample case file that can be run to obtain the simulation results produced in the paper. The script used to run the simulation is titled "OF_Pronghorn_script". All files are uploaded as txt files, but the .txt extension needs to be removed to run the simulation. The folder structure needed to run the simulation is:

Parent_Dir

- 0
 - p
 - U
 - uniform
 - time
- constant
 - transportProperties
 - turbulenceProperties
 - geometry
 - cylinders.obj (uploaded here as cylinders.txt)
 - cylinders.emesh (not able to upload here)
- system
 - blockMeshDict
 - controlDict
 - decomposeParDict
 - fvSchemes
 - fvSolution
 - meshQualityDict
 - snappyHexMeshDict
 - surfaceFeaturesDict