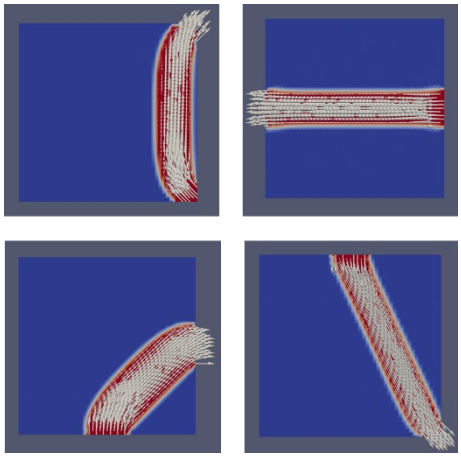
Project 2: Field Prediction Surrogates from Finite Element Analysis Codes



Category

Supervised Learning or Unsupervised Learning, depending on approach used

Problem Description

Often running Finite Element Codes can be costly, given the need to iterate over potentially very complex physics and interactions. To get around this, one common approach is to use Surrogate Models that attempt to predict the underlying physics field without running FE code. For this project, you will be given thousands of runs of Stoke Flow fluid simulation code and the corresponding boundary conditions. Your goal will be to take those Boundary conditions and predict the internal flow field from Stoke flow, but without needing to do the actual Finite Element Calculation.

Data Source

I will provide this data source via the Canvas website or a link to a data file where you can download it.

Key Performance or Evaluation Criteria

- Mean Squared Error between the ground truth flow field vectors and the predicted vectors from your model.