3C of Machine Learning

The Different Facets of Complexity

The Concept of Complexity

❖ The choice of the right machine learning algorithms to a particular task challenges the maturity of the data scientist. One often needs to balance different needs and resource usage to deliver the best outcome.

❖ Three different types of complexity needs to be kept in mind
  ➢ **Model Complexity** - The expressive power of the algorithm
  ➢ **Sample Complexity** - Minimal number of samples for the algorithm to warm up
  ➢ **Computation Complexity** - The computation power needed to finish the task

❖ Often the models with higher model complexity are associated with higher sample complexity and higher computation complexity

❖ How do we choose an algorithm which strikes a balance among these parameters?