# Comp 700 - Assignment 1

Aryan Madhanjith (220005624)

­­

## 1) Summary of article

The article analyses the science aspect of Computer Science. This is complicated because it is far from an “ideal” science. This analysis would be beneficial to those new in the field by highlighting approaches to problem-solving.

The scientific method is simplified, distinctions are made between science and technology (as CS deals with both), as well as the definition of CS (and its sub-areas). Investigating these issues indicates that characteristic features of classical scientific methods are also in CS.

Scientific methods of CS­­ include:

1) Modelling: The important characteristics of a phenomenon are abstracted into a simple idea which can then be studied.

2) Theoretical computer science: Create methodologies, logics and semantic models to help design programs, to reason about programs, to prove their correctness, and to guide the design of new programming languages.

3) Experimental computer science: To understand the nature of information processes, computer scientists must observe phenomena, formulate explanations and theories, and test them. This allows for theories to be accepted.

4) Computer simulation: Advancements in technology allow us to investigate issues beyond our current capabilities and to study phenomena that cannot be replicated in laboratories.

## 2) Proposed methodologies

The question to be answered in the project is, “Can an ML model interpret song lyrics?”

From this, we can infer that main methodology to be used will be modelling (in context of the article above). Various ML models will be created, differing in their architecture (viz probabilistic models, neural networks, or transformers). Based on these differences, we can hypothesize which model will perform the best.

Experiments/tests (or experimental CS methodologies) will then be done for each ML model. Some also have adjustable hyperparameters that can influence outcome of the tests – these will have to be fine-tuned either by more experimentation or algorithmically.

The models are ranked via metrics (namely accuracy and f1-score). Although, with the use of plotting libraries (such as Matplotlib), we can discover more about why some models outperform others (with the added benefit of these insights being easy to visualize).