Regulations

$$\text{Regulations} \propto \frac{1}{\text{Innovations}} \quad \left(\begin{array}{c}\text{Common Myth which leads}\\\text{to bad policy making}\end{array}\right)$$

IT companies are not considered companies, they comes under Shop. IT employees are assistants which do not have any fixed working hours.

In digital sector people are being replaced, but there are not jobs being created.

Curious case of Google ethics council.

→ The council has to ethically test the products being passed.

Self-regulation : to prevent themselves from being regulated.

fundamentally companies are incapable of self governance because of the aim of the company is to increase the shareholder value. This is contradictory.

Money making is by ;
→ Innovation
→ Exploit
⟂ Generally both happens.

2 → not a moral choice, but that is what needs to be done.

Microsoft has an Ethics council, but still came under fire for something ethical such as selling product to border forces.

Ethics Washing → using ethical language to cover up the ethically grey areas.

Techno - solutionism ⇒

Societal problems are not solved by trying to rush through them with the technology.

e.g. Less Doctors. problem can't be solved with an APP ; the

structural issue is not solved.

Technology makes things faster, but not solves the fundamental problem.

"The idea that you can solve the societal problems with technology is called Techno solutionism."

Technology makes system efficient; it is an accelerant, but not the solution.

e.g. 1. Problem of traffic in Banglore.

e.g. 2.

Reification → Creating a reality by creating "categories"

· Making categories and then competing in those categories is called the problem of reification.

e.g. Kaggle. → People competing in a bunch of categories.
This can be called as shared delusion.

e.g. Money

Scientific objective truth is different from the actual reality of Machine Learning.

People who makes decision to used AI algo. as tool needs to be careful as they are one creating problem.

AI has it's inherent problem of Stochasticity which is a fact but the decision to use it, comes from human.

Introduction to Machine Learning

Algorithms that improve automatically through experience by using data.
Data is unprocessed information.

Training data	Testing Data	Validation Data
↓	↓	↓
to learn patterns	Testing on unknown	validating on model whether the model has learned or not.

features → attributes on which the model learns i.e. the useful qualities extracted from the training data points.
These features are important because they defines the quality of the model and it's results.

for traditional ML → we need to find good features.
Curse of Dimensionality → more dimension slows the computation and makes training slow, so we need to reduce the dimensions.
for this we have PCA → Principal component Analysis and other is SVD → (Singular Value Decomposition).

Cross-Validation → Validation data needs to be more robust, for that we break the data into say 'n' sets and use (n-1) sets for training and n^{th} for validation and repeat this process 'n' times. Then take the average validation. This is called Cross-Validation.

(Ktwi)

Active Learning → If there is some new category ∧ apart from 'mango' and 'orange'. Then we don't need to retrain whole model whenever we get a need new data.

We add the data of the we new category which is actually useful and then re-train on the new dataset.

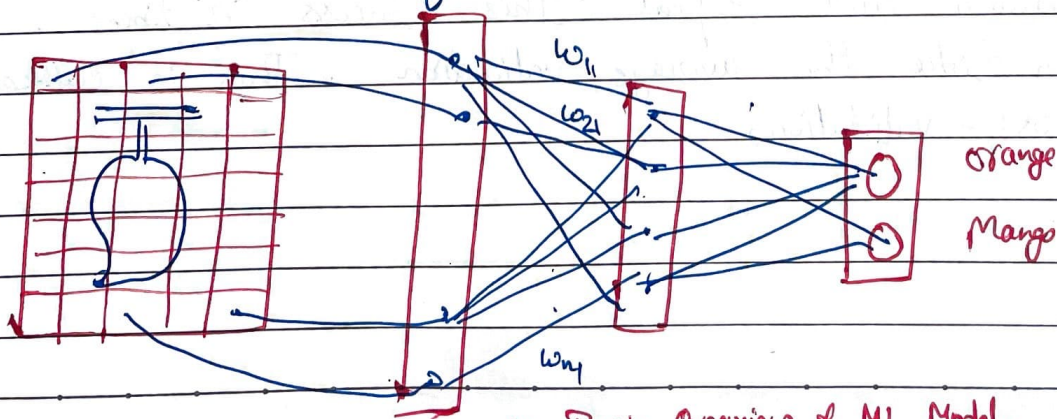Actually useful means that those images where the previous model is making most error (confused).

Ensemble Learning → Results from multiple models and then take the average of the answer.

Oracle → Synthetically creating images to test the model on.

Overfitting → ML algo. has become too confident because of the lack of diversity in training set. and it gives wrong answer on the testing set which is of different distribution.
Model is narrow vision and is brittle in nature.

Explainability → Why the model gave such results ?

Bias → A model is biased which has been learnt from a feature/s which are not relevant and has ignored such features which are actually relevant.

e.g. Basic Overview of ML Model.