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(Class notes)

2nd AI boom → Japanese corporate firms.
(1st AI winter)

Scruffy research ⇒ Disciplined research
(In 90's)

(1993-2011 → Victory of neat" way of doing research)

9/8/24 → India doesn't have AI law. [AI task force]

[Moven → Surveillance satellite]

NITI Aayog → (AI for all)
(Successor of Planning commission)

9/8/24 FRT → Facial Recognition Technology (Ex Digi Yatra)

[ML → probabilistic tech
FRT can't have 100% of precision]

Regulations can be good / bad for innovation
↳ (happen for category of people)

China → National security emphasis

[GDPR → secures right of European citizens]

US → Individual emphasis

Europe → business emphasis

Anxiety to technology → economical not psychological

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IT companies come under shops act not under (MSME)

~~New jobs aren't created only old jobs are being filled~~ ~~[Innovation]~~

13/8/24 Google Ethics council:-

→ demand from industry that IT must be harshly regulated

→ Hence IT companies came up with "self-regulation"

→ "Stochastic parrot" ~~parrot~~ ~~criticised~~ caused firing of entire Google's ethics team

→ companies incapable of self-governance

[ideology (due to) → complicity → legally bound to shareholder value]

(Ex:- google selling it's tech to border patrol agencies)

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Techno solutionism ~~(reification)~~

→ Societal problems can't be solved by using more technology [Structural issues can't be replaced by accelerant] → (like using technology)

→ ~~Reductionist~~ Too much reductionism is harmful

Reification:-

→ ~~Creating a false reality / delusion~~

→ Making categories & fitting data according to it [very limited, full of errors]

→ *creating reality by creating category.

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* AI dosen't create problems, people do.
  ↳ (don't have agency)
* human decisions ultimately prevail

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Introdn to ML:

ML → ~~that im~~ Algorithms that improve automatically thru experience by using data

[Data → unprocessed info
  info → processed data]

Training data → info thrown at magic box
testing data → check knowledge of magic box } supervised ML

for supervised ML: Features of magic box

Magic box → sophisticated [" " less precise]
↳ simple [Training data must be more precise]

Features → set of vectors (location)

Curse of dimensionality: [computational power $\propto \frac{1}{\text{(no of dimensions)}}$]

[dimensionality redn ⇒ to find useful dimensions out of all dimensions]

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① Cross validation → [~~Images broken into parts~~ ↓ ~~Do training of parts~~]

(Ex: 80,000 error messages)

→ (training by parts) (training data broken into parts)

② Active learning → [To avoid re-training only new data is added]

→ [check bigger errors in original data & then add new data]

→ (Pick up data points which is confusing the old model).

③ Ensemble learning → [Mix a bunch of models]

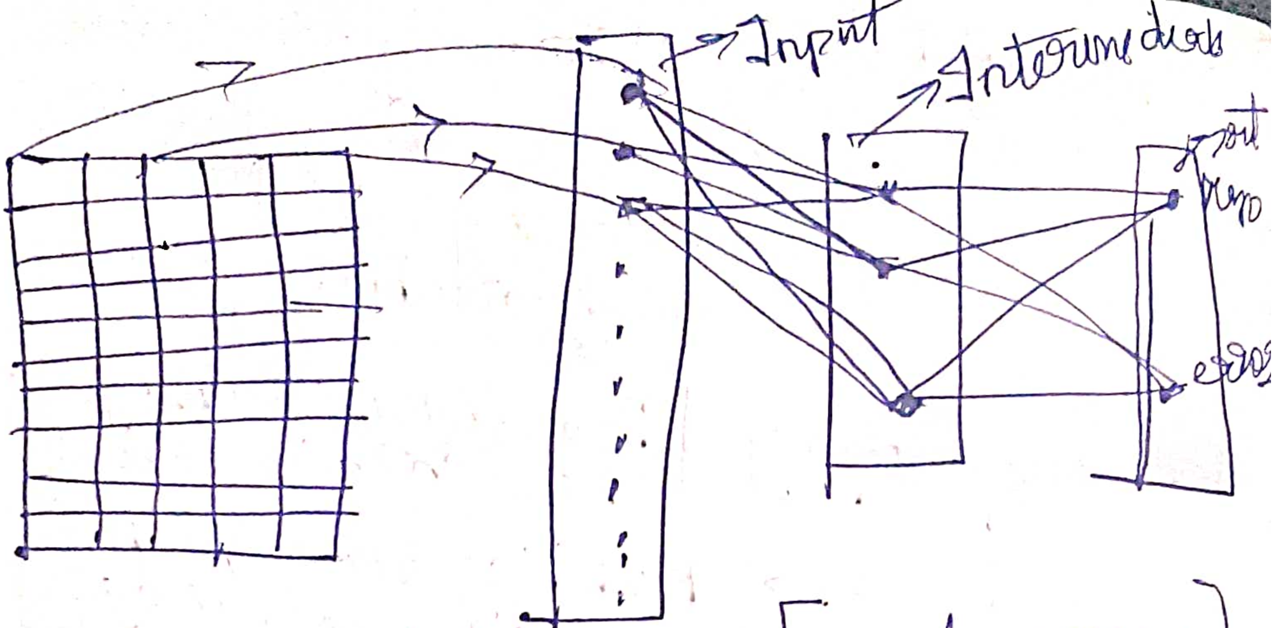
④ Oracle → [creates synthetic test cases]

⑤ overfitting → [~~ML algorithm~~ is lacking in ~~diversity~~] (data points in training sets are similar to each other & lacks diversity)

→ (Brittle model broken by anomalous data)

⑥ Explainability → models explain how result is obtained

⑦ Bias → answer depends on irrelevant features.



(each point has a wt [random no. is assigned]

{ Every time error occurs process repeated)

[signals goes (background) to check errors
↳ (back propagation)

(Convolutional NN ⇒ computer vision)

(simplest neural network ⇒ perceptron
(complex NN ⇒ deep layer network)