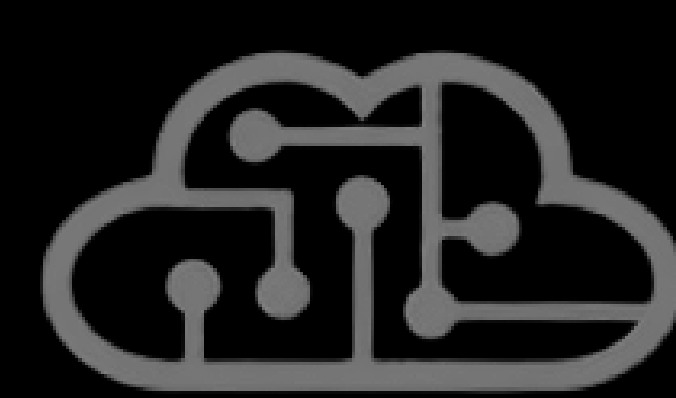




NEXT BIG THING IN MACHINE LEARNING

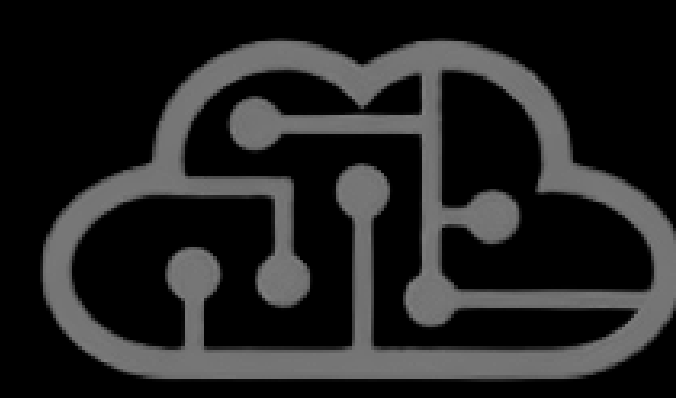




GUESS

WHAT

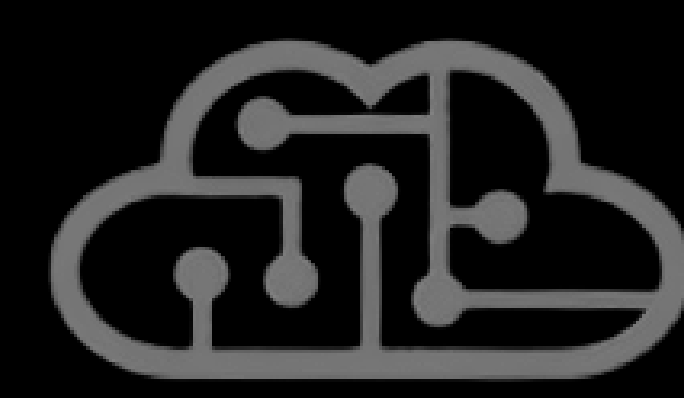
IT IS?



**Guess it again before
going to the next slide**

Comment





It is
self-supervised learning

It can be the future of AI

Learn more about it

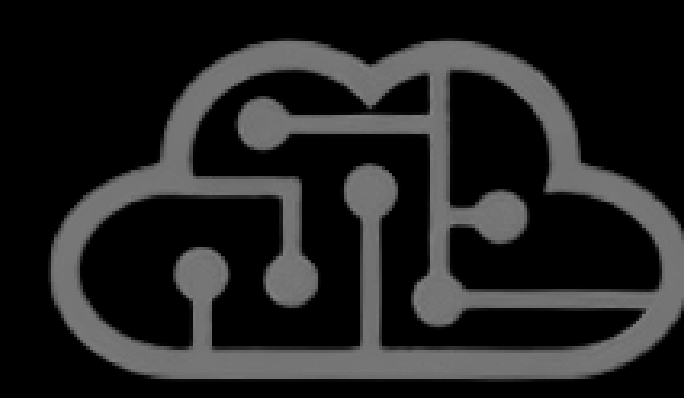


What is self-supervised learning

In self-supervised learning, the system learns to predict part of its input from other parts of its input. In other words, we train a model using labels that are naturally part of the input data, rather than requiring separate external labels.

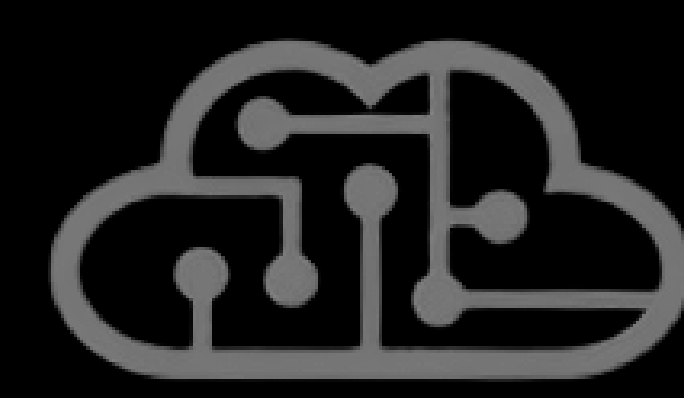
---Yann LeCun





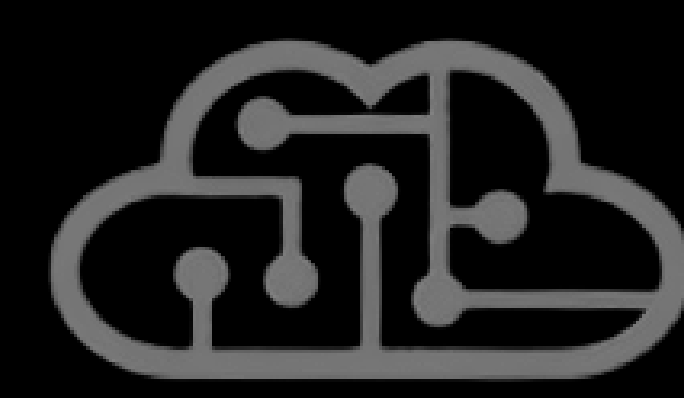
why self-supervised learning

- NO HUMAN INTERVENTION
- When getting more annotated data is expensive.
- When annotating data is difficult (medical domain)
- But unlabeled data is being generated all the time. To make use of this much larger amount of unlabeled data, one way is to set the learning objectives properly so as to get supervision from the data itself.



How does it work?

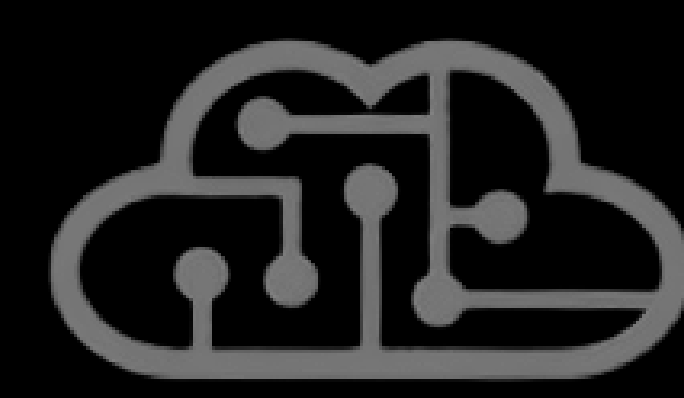
- As a first step, we transform the unsupervised learning task to supervised learning (so called pretext task) by extracting labels from the samples.
- Labels can be generated automatically, with some very simple algorithm (maybe just random selection).
- The model learns from the labels it generated by creating a
- And then we can use these learnings to do someother tasks (so-called downstream tasks) by fine-tuning it.



pretask examples (text)

- Ask the network to predict the next word in a sentence (which you know because you took it away).
- Mask a word and ask the network to predict which word goes there (which you know because you had to mask it).
- Change the word for a random one (that probably doesn't make sense) and ask the network which word is wrong.

Source - stackexchange)



pretask examples (images/ videos)

- Image Colorization
- Placing image patches in the right place
- Placing frames in the right order
- Image Inpainting
- Classify corrupted images
- Image Distortion
- Image Rotation

**Choosing a pretask completely depends
on how your downstream task is**