

# Unsupervised Models

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- Unsupervised models: the past and future of data

# Unsupervised Models – Yann LeCunn

## ■ “Pure” Reinforcement Learning (cherry)

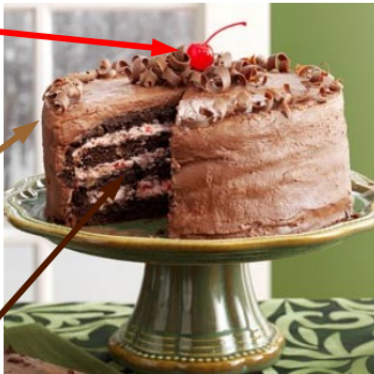
- ▶ The machine predicts a scalar reward given once in a while.
- ▶ **A few bits for some samples**

## ■ Supervised Learning (icing)

- ▶ The machine predicts a category or a few numbers for each input
- ▶ Predicting human-supplied data
- ▶ **10→10,000 bits per sample**

## ■ Unsupervised/Predictive Learning (cake)

- ▶ The machine predicts any part of its input for any observed part.
- ▶ Predicts future frames in videos
- ▶ **Millions of bits per sample**



■ (Yes, I know, this picture is slightly offensive to RL folks. But I'll make it up)