deeplearning.ai

Learning from
multiple tasks

Transfer
learning

Transfer learning

image recognition (x, y)
↑
pre-training

→ (x, y) — fine-tuning
↑ ↑
radiology image   diagnoses

$\mathbf{x}$ → → → → → → → → $\hat{y}$

$w^{[L]}, b^{[L]}$ → $\hat{y}$

image recognition
→ 1,000,000 ↓ 100 ←
↓
radiology diagnosis
→ 100   1000

$\mathbf{x}$ → → → → → → → → $\hat{y}$

audio

$\hat{y}$

Speech recognition
10h   10,000h

wakeword/ triggerword
detection 1h
50h

Andrew Ng
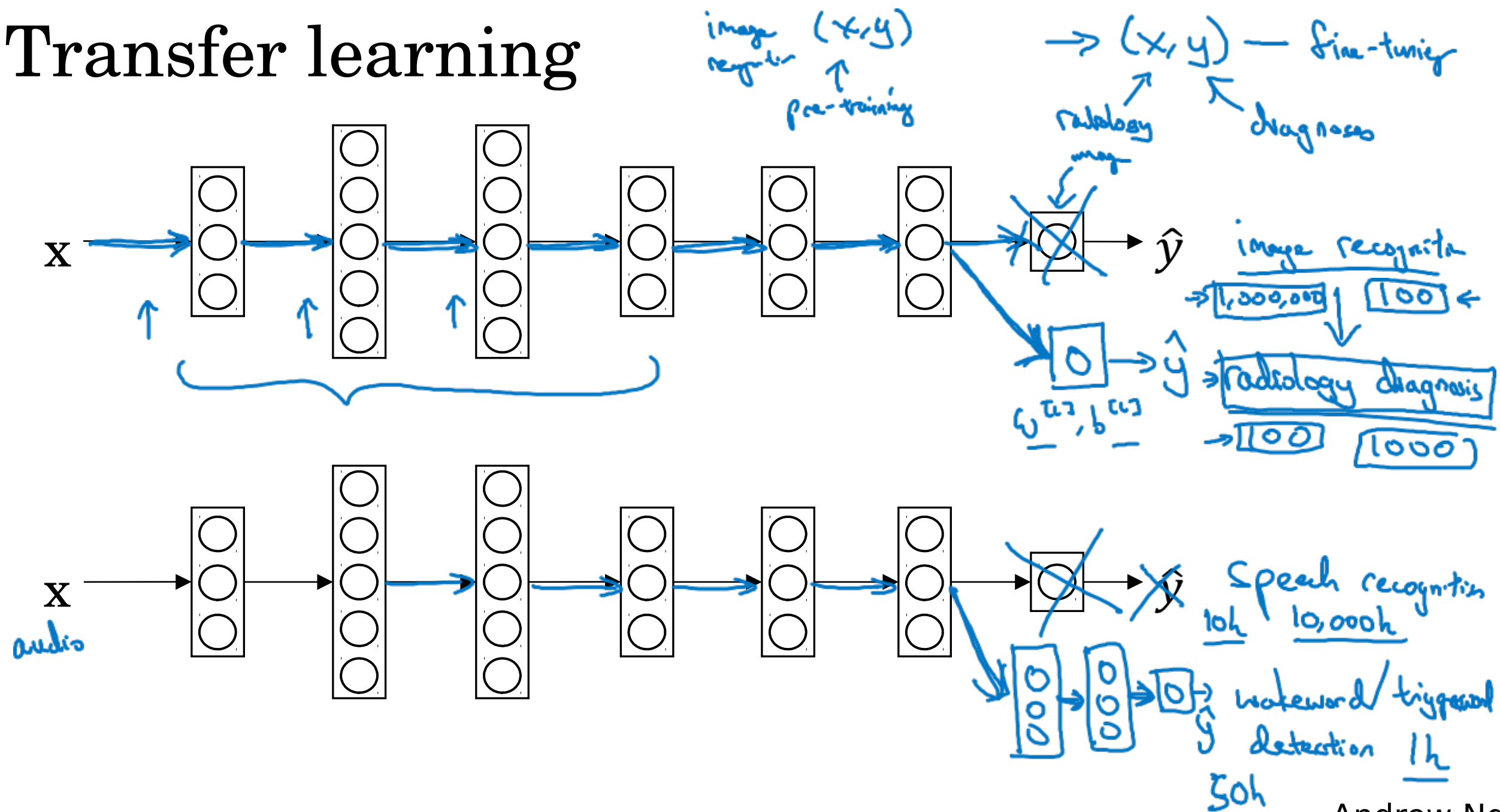
When transfer learning makes sense

Trnsfr from A → B

- Task A and B have the same input x.

- You have a lot more data for Task A than Task B.

- Low level features from A could be helpful for learning B.