



deeplearning.ai

End-to-end deep  
learning

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Whether to use  
end-to-end learning

# Pros and cons of end-to-end deep learning

## Pros:

- Let the data speak
- Less hand-designing of components needed

If you have lots of data  
→ When you don't want model to be influenced by human constructs & you want the model to learn the representation itself (This is the opp of the con\*)

## Cons:

- May need large amount of data ( $X, Y$ )
- ✱ Excludes potentially useful hand-designed components

→ When data is large, no need to hand design

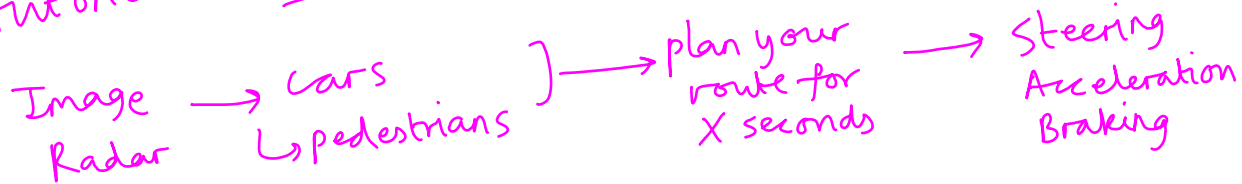
→ way to inject manual knowledge into the Algo  
→ esp useful when data is not large

# Applying end-to-end deep learning

Key question: Do you have sufficient data to learn a function of the complexity needed to map  $x$  to  $y$ ?



Autonomous car



- what about finding the intended directions of cars/pedestrians around you?

That part is not done via DNN  
Rather done by motion planning

∴ It's hard to apply E2E DL on Autonomous cars  
where you go from Image → steering