deeplearning.ai

End-to-end deep learning

Whether to use end-to-end learning

Pros and cons of end-to-end deep learning

Pros:
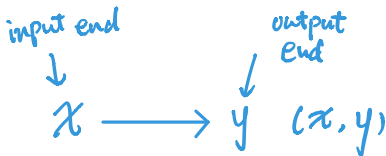
- Let the data speak $x \longrightarrow y$ "phonemes"
                                                  $c\ a\ t$

- Less hand-designing of components needed

Cons:

input end   output
                   end

- May need large amount of data $x \longrightarrow y$ (x, y)

- Excludes potentially useful hand-designed components
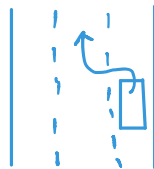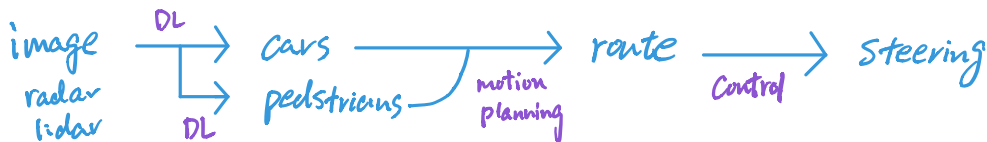
Data   Hand-design

Applying end-to-end deep learning

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

image ──DL──▶ cars ──────────▶ route ──────────▶ steering
radar   ──DL──▶ pedestrians ──motion planning── Control
lidar

- Use DL to learn individual components
- Carefully choice $x \rightarrow y$ depend what tasks you can get data for

image ──────────────────▶ steering

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