



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
- Less hand-designing of components needed

$x \rightarrow y$

"phonemes"
→ c a t

Cons:

$x \text{ --- } y$

input
end

output
end

- May need large amount of data $x \rightarrow y$ (x, y)
- Excludes potentially useful hand-designed components

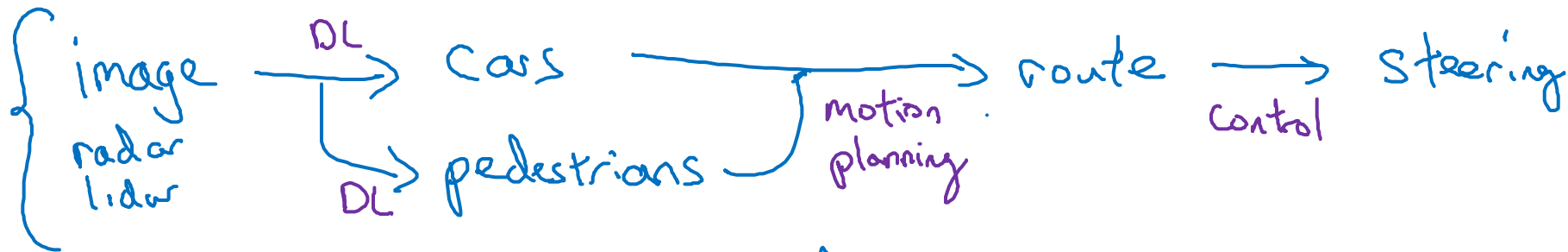
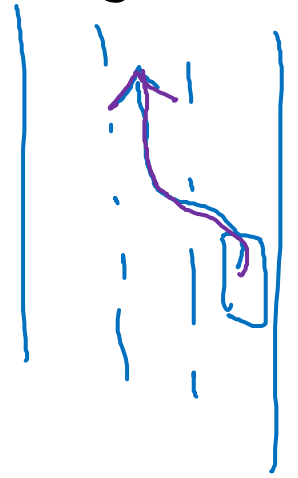
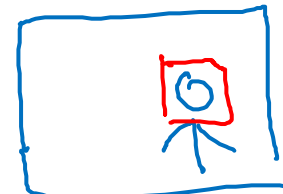
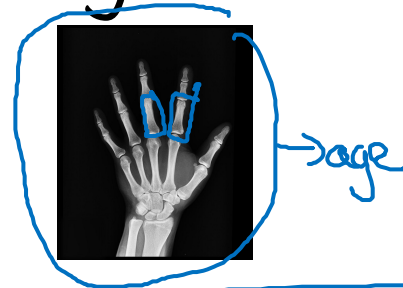
Data.

Hand-design

Applying end-to-end deep learning

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

$x \rightarrow y$



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

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