

# Whether to use end-to-end deep learning

Before applying end-to-end deep learning, you need to ask yourself the following question: Do you have enough data to learn a function of the complexity needed to map  $x$  and  $y$ ?

Pro:

- Let the data speak
  - By having a pure machine learning approach, the neural network will learn from  $x$  to  $y$ . It will be able to find which statistics are in the data, rather than being forced to reflect human preconceptions.
- Less hand-designing of components needed
  - It simplifies the design work flow.

Cons:

- Large amount of labeled data
  - It cannot be used for every problem as it needs a lot of labeled data.
- Excludes potentially useful hand-designed component
  - Data and any hand-design's components or features are the 2 main sources of knowledge for a learning algorithm. If the data set is small than a hand-design system is a way to give manual knowledge into the algorithm.