

① What is end-to-end deep learning

→ Using 1 large network to do a complex task instead of using multiple stages

eg: audio $\xrightarrow{\text{MFCC}}$ features $\xrightarrow{\text{ML}}$ phonemes \rightarrow words \rightarrow transcript

audio $\xrightarrow{\hspace{10em}}$ transcript

→ Usually works well with large amounts of data

② Whether to use end-to-end deep learning

• Pros & cons of end-to-end DL

→ Pros

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

→ Cons

- May need large amount of data
- Excludes potentially useful hand-designed components

• Applying end-to-end DL

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