AI Grand Challenge: **Learning and Using Semantic Knowledge**

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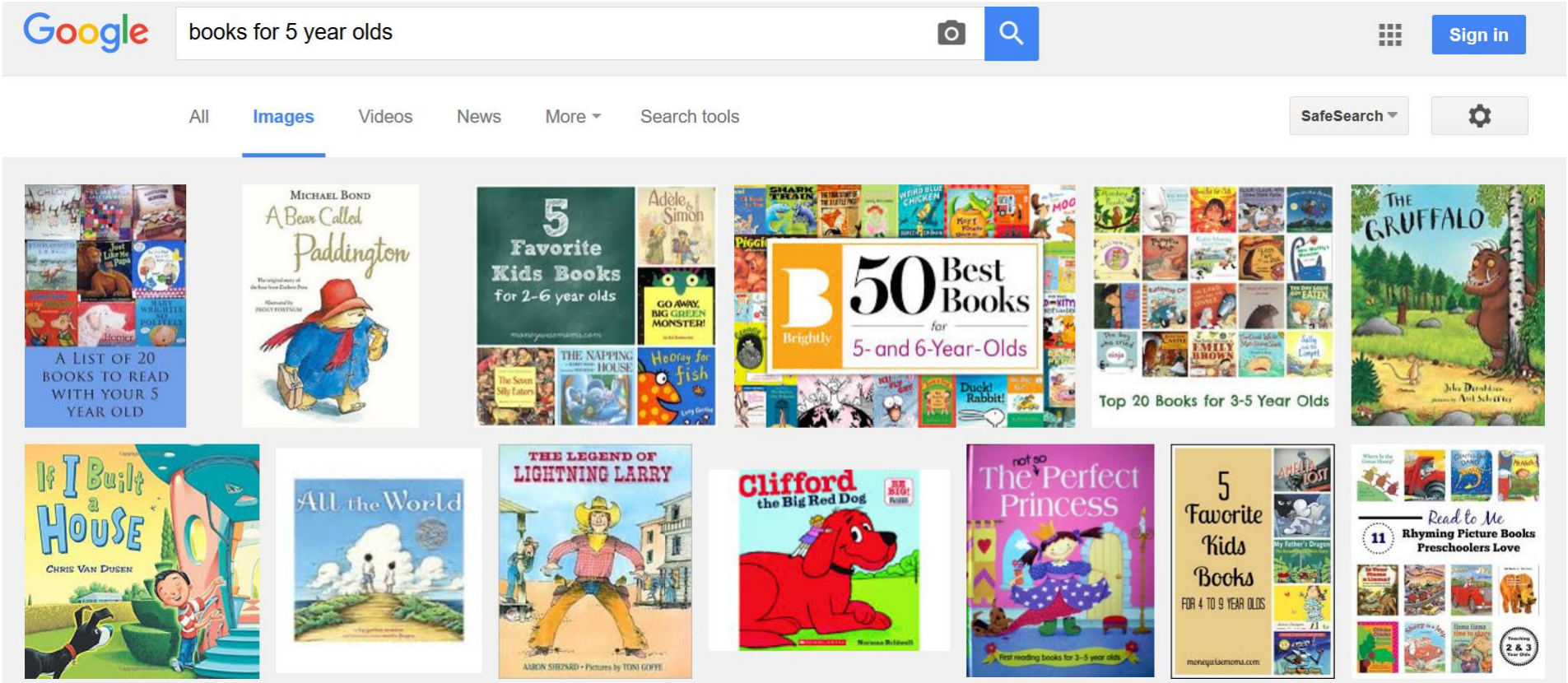
Deep Learning and Beyond

- Rapid recent progress achieved in "what" and "where" tasks, e.g. recognition, detection, segmentation, tracking, etc.
- Predominant approach: deep neural network + large dataset
- Semantic knowledge not (yet) explored much in Comp. Vision
  - Only 3 CVPR 2016 papers with “knowledge” in title

Semantic knowledge

- Ignoring semantic knowledge is a bit like raising a wolf-child
  - Reinforcement learning (pain, hunger, thirst, etc.)
  - Unsupervised learning (experience the world by itself)
  - Supervised learning (learning through observation of caregiver)
- But children are exposed to semantic knowledge from young



Looking beyond “what” and “where”

"girl in pink dress is jumping in air."

"young girl in pink shirt is swinging on swing."

- Deeper understanding needed beyond “what” and “where”
- How? Why?

Knowledge supports deeper, real visual understanding

Thank You