LITERATURE SEARCH

OUTLINE
- Literature search strategy
- Tips for using Google search
- Google Scholar
- arXiv

DEFINE THE KEY WORDS
- Determine the research question
  - "How to use a deep learning approach to find moving objects in a video"
- Identify the main concepts in your question
  - Deep learning, moving object detection
- Find different keywords/phrases to express the concepts
  - Deep neural networks; motion segmentation
- It may be useful to create a concept map
  - First identify the major concepts within the question then organize appropriate key terms

WHERE TO SEARCH
- Websites:
  - Search engines, Google, Yahoo, Bing
- Databases:
  - IEEE Xplore Digital Library
  - ACM Digital Library
  - Google Scholar
  - arXiv (pronounced “archive”)
- State-of-the-art results, some are not yet peer-reviewed

WIDEN YOUR SEARCH
- If you get too few references or most of the references are irrelevant:
  - Check your spelling
  - Look for variations in spelling and alternative words
  - Use a broader search question
  - Do you need to search more databases?
  - Discuss your topic with your supervisor
  - Is your topic too novel?
  - Has the topic been explored but found not working?
RESTRICT YOUR SEARCH

- If you receive too many results:
  - Focus your search and make it more specific
  - Check if Boolean operators were used correctly
    - For example, have you used AND when you should have used OR?
  - Could you limit it by date range?
    - Published in the past 5 years
  - Could you limit the search by language or file type?
    - English only, PDF files

CRITICALLY APPRAISING

- Critically evaluating the search results is important
  - Is what you found reliable?
  - Has the publication been peer-reviewed?
    - Course project reports done by students likely have less scientific values than peer-reviewed articles
  - Is the source reputable?
    - Focus on the most prestigious journals and conference proceedings in your field

RELATED REFERENCES

- Bell, J., & Waters, S. (2014):
  - Doing your research project: A guide for first-time researchers (6th ed.)
    - Chapter 5 - Literature searching
    - Chapter 6 - The review of the literature
  - 7 steps to a comprehensive literature review: A multimodal & cultural approach
    - Chapter 5 - Initiating the search
  - Real world research (4th ed.)
    - Chapter 3 - Developing your ideas

TIPS FOR GOOGLE SEARCH

- Use quotes to search for an exact phrase
  - "deep neural networks"
- Use the asterisk within quotes for wildcard
  - "deep * networks"
  - "deep belief networks," "deep autoregressive networks," …
- Use a hyphen to exclude words
  - deep neural -network -networks
  - Output does not contain "deep neural networks" anymore

TIPS FOR GOOGLE SEARCH (CONT’D)

- Use "site:" to search within specific sites
  - site:mit.edu deep learning
- Use "define:" to learn the meaning of words
  - define: neural
- Use "link:" to find a page that links to another page
  - link:mitpress.mit.edu/books/deep-learning
- Use "related:" to find sites that are similar to other sites
  - related:mitpress.mit.edu/books/deep-learning

GOOGLE SCHOLAR

- A freely accessible web search engine that indexes scholarly literature
  - Includes most peer-reviewed online academic journals and books, conference papers, theses and dissertations, preprints, abstracts, technical reports, and other scholarly literature, including court opinions and patents
  - Estimated to contain roughly 140 million documents as of May 2014 or approximately 80~90% coverage of all articles published in English
  - Can also be used for:
    - Finding the most influential researcher in a given field "label:graphics"
    - Tracking the latest publications by a particular author
    - Find the highly cited work by a researcher
ARXIV

- A repository of e-prints approved for publication after moderation
- Consists of scientific papers in the fields of mathematics, physics, astronomy, electrical engineering, computer science, quantitative biology, statistics, and quantitative finance
- Many CS researchers now post their papers at the same time they submit to conferences/journals
- Grown in exponential rate
  - Begun on August 14, 1991
  - Had half-million article by October 2008 and 1 million by December 2014
  - Submission rate grown to more than 10,000 per month by October 2016