How to Select Research Papers for Course Project

David I. Inouye

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A few comments

- You must select 3 or more *related* papers (checkpoint 2)—they must be related in some way that makes sense.
- But, I will allow changes to your paper selections after that date
- Best to get started early and work incrementally
- Use already available data and try on small datasets and models first

One possible process

1. Select high-level area of interest
   i. Artificial Intelligence – AAAI*, IJCAI
   ii. Machine Learning – NeurIPS*, ICML*, ICLR*, JMLR*
   iii. Computer Vision – CVPR*, ICCV, ECCV
   iv. Natural Language Processing – ACL*, NAACL, EMNLP
2. Select titles (not arXiv or "workshop" papers)
   i. Find most cited papers in these conferences (usually the better papers)
   ii. Or select titles that interest you
   iii. Or select titles that cover topics in our class ☺ (see schedule)
      - E.g.: "flows", "invertible", "GAN", "VAE", "Adversarial", "Autoencoder", "Generative models"
3. Read abstracts of these papers to narrow your selection
4. Download full papers and skim

Two approaches to finding paper titles

- Google Scholar Metrics (most cited papers)
  - https://scholar.google.com/citations?view_op=top_venues&hl=en
  - Click magnifying glass in top right
  - Search for conference (top right)
  - Click hyperlink number under “h5-index”

- Go to venue website (“accepted papers” or “proceedings”)
  - http://jmlr.org/papers/
  - https://papers.nips.cc/book/advances-in-neural-information-processing-systems-31-2018

Expanding based on one paper

- (Backward) Read paper and find key references of paper
  - Most papers based on one or two previous papers

- (Forward) Find papers that cite this paper
  - Google scholar again ☺
  - Example for ICML 2017 paper “Attention is All You Need”: https://scholar.google.com/scholar?hl=en&as_sdt=0%2C15&q=Attention+is+All+you+Need&btnG=

Concluding thoughts

- Tutorials at conferences can be great resources for an overview of a topic (many recent ones have videos and slides)
  - ICML 2019 Tutorials
  - NeurIPS 2019 Tutorials
- Do not expect to understand after reading once
  - Most papers will take multiple (if not many) reads to understand (especially when you're new to the field)
  - Do not be discouraged because it is challenging