Final Project

Exercise 1
CSC872
Pattern Analysis and Machine Intelligence

Literature Survey

• Guided literature review on deep learning
  – Read a survey paper by LeCun et al.
  – Choose a subtopic to study covered in the paper.
  – Select three articles on the subtopic from the paper
  – Review the articles: summarize, critique and improve
  – Write a survey report (Due on Dec 6)
  – Presentation of the report (On Dec 6)

• Hands-on exercise for your own thesis and publication.
• Current knowledge on Deep Learning
• Read the assignment
Choose Survey Topic

- Choose among things described in *LeCun et al.*
- Can be a concept and how it works/is applied
  - e.g., ConvNet
  - e.g., Distributed Representation
- Can be a concrete question
  - e.g., Why ConvNet won ImageNet 2012?
  - e.g., Why distributed representation is better for DL than local representation?
- Consult your instructor upon questions
- Submit a brief description of a chosen topic and selected papers for the instructor review & approval by Oct 18.

Select Representative Articles

- Select papers that are cited in the part describing your chosen topic in *LeCun et al.*
- When you read them, you may find other papers cited in those you selected that are relevant/interesting.
- Among these reference and reference of reference in *LeCun et al.*, select most representative three or more covering your topic.
- To understand the gist of papers, you may have to gain some background information via online search on curated materials → Follow citations!
Survey the literature

- Focused online search on curated materials
- Google scholar: http://scholar.google.com/
  - Find follow-up papers that cite a paper you know.
- SFSU resources to get free PDF copies
  - http://library.sfsu.edu/
    - Find Articles Book+ → Find Articles & More in Databases → ComputerScience → Go
  - IEEE Electronic Library
  - ACM Digital Library
  - Google Scholar
  - Pubmed

Review articles

- Read collected articles carefully
- If you do not understand some parts
  - Find citation related to the parts
  - Go to the reference list
  - Find and read the cited papers, and/or
  - Read the textbook chapter on the subject
- Read them thoroughly with critical mind
  - Not all claims are true
  - Limitations of work is hard to find sometimes
  - Imagine you be a peer-reviewer of this paper!
Questions to keep in your mind

• **Paper Critique (You be a Referee):**
  - Domain/Goal of study?
  - Technical context of this study?
  - Specific problem/hypothesis addressed?
  - Proposed solution/method/theory?
  - Any prior assumption for the solution (limitation)?
  - Are their experimental design sound?
  - Are their experimental results convincing?
  - How does this compare to others?
  - What advantages when?
  - What disadvantages when?
  - Reason why this solution makes sense or no-sense?
  - Argue against any claims?
  - Any improvements possible? How can I improve it?

Final Report

• Follow the SFSU Master’s thesis format.
  - [https://grad.sfsu.edu/content/thesis-dissertation](https://grad.sfsu.edu/content/thesis-dissertation)
  - Around 14 double-spaced pages
  - Two-page introduction, two pages for each paper, four-page critique and conclusion, and two-page reference list for instance.

• Due on the last lecture day Dec 6 Tuesday
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<tr>
<th>Report contents</th>
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<tbody>
<tr>
<td>a) Title and abstract of your report, and your professional affiliation</td>
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<tr>
<td>information</td>
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<tr>
<td>b) Introduction/technical context of a specific research problem you chose</td>
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<td>c) Bibliographic citation information and credibility of the author’s research</td>
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<td>group of each selected article</td>
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<td>d) Brief summary of proposed methods/contributions by each article</td>
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<td>e) Brief discussion on how they relate to the PAMI research subfields</td>
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<td>covered in this course</td>
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<td>f) Detailed critique on the work described in the articles</td>
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<td>g) Your logical conclusion(s) based on your above critique</td>
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<td>h) Suggestion of most promising strategies for solving your research problem</td>
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<td>i) Reference list</td>
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<th>Final Presentation</th>
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<tr>
<td>• Pechakucha-style short presentation.</td>
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<td>– <a href="http://www.pechakucha.org/">http://www.pechakucha.org/</a></td>
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<td>– 20 x 20 or 10 x 30?</td>
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<td>• Submit your PPT slides by Dec 4(^{th}) 5pm</td>
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<td>• Order of presentation TBD</td>
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<td>• Use visual figures/images/schematics Demo</td>
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<td>• Be logical in presentation</td>
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<td>– Follow your report in structure but only cover main things</td>
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<td>– Define terms early</td>
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<td>– Give a concrete and clear conclusion of your study.</td>
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Resources

- Do not procrastinate !!!
- Literature Review Tutorials
  - Paper
  - Youtube Video
  - See them on iLearn