

Final Project

Exercise 1

CSC872

Pattern Analysis and Machine Intelligence

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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 five articles or more on the subtopic from the paper
 - Review the articles: summarize, critique and improve
 - Write a survey report (Due on **May 13**)
 - Presentation of the report (on **May 13**)
- **Hands-on exercise for your own thesis and publication.**
- **Foundatoin on Deep Learning**
- **Read the assignment**

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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 no later than Mar 18.**

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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 five 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!*

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Survey the literature

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



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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!

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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?

Summary

Critical

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Final Report

- Follow the SFSU Master's thesis format.
 - <https://grad.sfsu.edu/content/thesis-dissertation-guidelines>
 - 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.
- Generative AI/ChatGPT
- Due on the last lecture day **May 13**
Tuesday

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Report contents

- a) Title and abstract of your report, and your professional affiliation information
- b) Introduction/technical context of a specific research problem you chose
- c) Bibliographic citation information and credibility of the author's research group of each selected article
- d) Brief summary of proposed methods/contributions by each article
- e) Brief discussion on how they relate to the PAMI research subfields covered in this course
- f) Detailed critique on the work described in the articles
- g) Your logical conclusion(s) based on your above critique
- h) Suggestion of most promising strategies for solving your research problem
- i) Reference list

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Final Presentation

- Pechakucha-style short presentation.
 - <https://www.pechakucha.com/about>
 - 20 x 20 or 10 x 30?
- Submit your PPT slides by **May 11th 5pm**
- Order of presentation TBD
- Use visual figures/images/schematics **Demo**
- Be logical in presentation
 - Follow your report in structure but only cover main things
 - Define terms early
 - Give a concrete and clear conclusion of your study.

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Resources

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