ERSP: Identifying Goals & Objectives + Literature research

S14 Week 3
Today’s objectives

• Refine the research group goals and objectives together with your group
• Identify holes in your knowledge needed to understand the goals/objectives
• Identify holes in general knowledge (research problems)
• Critically read a research paper
Overview of the research process

1. Identify/refine research goal
2. Develop and refine objectives
3. Read background material
4. Design and refine study/work to meet objectives and needs
5. Carry out study/implementation and interpret results
6. Write and present products and documentation
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The cycle continues with the process.
The purpose of background reading at this two stages:

- Develop a sense of the research field
- Determine which specific objectives are still open problems
- Figure out what research problems others have addressed
- Learn about technical material you need to understand the research
Goal/objective refinement workshop (30 minutes, in ERSP groups)

- Group roles:
  - Timer: keeps track of time, progress toward goals (soonest birthday)
  - Recorder: Takes notes and modifies shared Google doc (next soonest birthday)
  - Driver: Steers the discussion. Keeps the group on task (third soonest birthday)
  - Reporter: Will report out to the full group at the end of the workshop (farthest away birthday)
Goal/objective refinement workshop (30 minutes, in ERSP groups)

• The task:
  • Combine and refine your list of research questions/goals/objectives into one
  • Identify the most pressing pieces of technical/background knowledge that you are missing, and strategies for learning this information
  • Identify 3-5 probing questions you would like to ask researchers in this field (e.g. your adviser) about this work
Sidebar: What is a probing question?

- Thought provoking
- Requires detail to answer
- Essential - needs to be answered
- Provides an entry route into the work
- Hard to answer
- Challenges the person being asked / makes them uncomfortable
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- The process:
  - (8 mins) Round-robin: Each member reports what they wrote in the shared document for research questions/goals/objectives (2 mins each)
  - (5 mins) Round-robin: Each member reports the most confusing thing about Q/G/O
  - (15 mins): Open brainstorming/work: Group members work together to consolidate/refine questions/goals/objectives and to identify missing technical knowledge and probing questions
  - (2 mins): Final organization, prepare to report out.
Report back (20 mins ~3 mins each)

- Present your group’s research questions /goals /objectives
- Present your group’s biggest technical hurdles
- Present your group’s probing questions
5 min break
Reading research papers: Practice

• Read the provided paper critically, highlighting and marking up the paper as you go
• Fill out the 1-page form (2-sides) either as you read or after you read the paper
Reading research papers: Pair discussion

• Compare your process: what does your marked up paper look like. What process worked for you? What didn’t?

• Compare your answers. What did you get out of the reading?

• Compare your questions: What questions are you left with?
Reading research papers: Meta-questions

• How interesting did you find the paper? If you did not find it interesting, what are some strategies you used to “force” yourself through it?

• How important was it to understand every detail? Which details did you feel you needed to understand? Which could you “skim over”?

• At what point in your reading did you feel you were starting to lose focus? What did you do in those situations?

• What worked in your process? What would you do differently?
For next time

• Attend your research group meeting!
• Assignment coming by tomorrow night: Read and reflect on a research paper related to your group (I will assign) + moving toward literature search