DATA 606

Day 3

Timeline

9/17 (Today): Discuss prospectus feedback, begin **expanding your literature review out to at least 10-15 pages.** This will be due **in class next week (9/24),** and we will do in-class peer-review of them.

9/24 (Next week): We will do in class peer-review of your literature reviews, and you will prepare your intro and literature review full draft for submission to **Dan and an anonymous peer-reviewer** on 10/1.

10/1: You'll turn in your full draft intro and literature review, and will owe commentary and review by 10/8.

10/8: Peer reviews are shared in class, Dan provides his feedback on your literature reviews. You'll work on your final draft for intro and literature review, which will formally be turned in on 10/15.

Prospectus Feedback: Intro

Common themes:

- Your research questions tended to be underspecified.
- Your literature was a bit too shallow (as expected in most cases).
- The linkages between RQs were not always clear to me.

Research Questions

Focus on a *very* specific problem. Don't be like this unnamed student:

- **Q2.** Can we extend developed/existing algorithms to encompass Uncertainty Quantification?

Research Questions

Make sure it’s clear that your approach is well grounded - i.e., it would be truly novel. There were 2 cases where this wasn’t crystal clear, but that’s to be expected given that your literature reviews have just begun.

Research Questions

Make sure it's *testable*. This doesn't have to be a hypothesis that is directly refutable, but it does need to be something that can have an answer based on testing.

1. *How does J/ψ photoproduction near the threshold provide insights into the properties of the proton and the possibility of observing multi-quark states?*

Research Questions

Make sure it's *interesting*. Questions that ask "Can something be done" have an answer: "Yes" or "No". That's not a great dissertation.

2. *Can we develop efficient data-driven MCMC Bayesian inference pipelines to compare theoretical models with experimental data from large-scale experiments while providing robust uncertainty quantification in the inferential process?*

Research Questions

Avoid vague terms.

You all really like “impact” or “effect” - i.e., you could say “Can we generate a new technique that operates in the context of data velocities approaching 5gb/second?” (Etc). Specificity is your friend.

Today: 1 brief discussion on prospectus feedback

Next week, we will do in class peer-review of your literature reviews (10-15 pages).