Math 462 Project description

This is a group project. Groups of 1-3 students.

Deadlines:

- By **Nov 5th**, put your names and groups, and topics in the spreadsheet.
- Spreadsheet link: https://docs.google.com/spreadsheets/d/1Y3AKVi1sJO7jZPOipWv7hIEwwNiqJukIM_Sn-XRr9PE/edit?usp=sharing
    - Project outline and draft to submit by **Nov 19th**
    - Final version **Nov 26th**.

Project Category 1.

- Read several recent or high impact deep learning papers. Refer also to blog posts/Github pages.
- Summarize the paper (abstract) in your own words.
- Define the machine learning problem they are trying to solve.
- **Stress Test: if you replace a deep model with a linear hypothesis class, is the problem well posed**
- Well-posed: do we have a well-defined supervised learning problem (similar to regression/classification) with inputs, S_m with (x, y) defined, hypothesis class, loss.
- Study how the loss selects the type of solution. (Does changing the loss change the answer?)

Project Category 2

- Reading recent DL or ML papers. Look for math/loss design ideas, and try to explain them.

Project Category 3

- If you already have a research project: see if any part of your project can benefit from topics we covered in class so far. Explain the project in language suitable for non-experts (class members), and focus on the loss-design / machine learning problems.
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