

# Inference and Representation, Final Project

Proposal Due 10/24 by Email

Report Due 12/16

October 4, 2016

- The course final project must be done in groups of exactly 2 registered students, no exceptions.
- The final project can take any of the following forms:
  1. In-depth review of one or several recent papers related to some of the contents of the class,
  2. Open-Source, high-quality software implementation of one or several algorithms related to the class that currently is not publicly available,
  3. New application of a machine learning model to a particular dataset and to a specific scientific question,
  4. Research project that addresses a machine learning method or a theoretical question. The research project can have a scope outside the course, e.g. it could be the seed for a longer research project.
- If the project concerns an application, these are some guidelines that may help when it comes to choosing the dataset and the question:
  - Not too small (at least 100 observations).
  - If you study a time-series, it should be approximately stationary, or made easily stationary by appropriate transformations.
  - Unique! Try to find a dataset/question that particularly interests you.
  - Have a look at the course syllabus. The project can be grounded on techniques that have not yet been covered in class but that will be in the upcoming lectures.
- **Proposal:** Write a 1-2 page proposal that details the question you are planning to address, which dataset are you planning to use and how it will be processed, which family of machine learning algorithms will be applied, and how are these methods going to be evaluated. Email the proposal to [apm470@nyu.edu](mailto:apm470@nyu.edu) and [anv273@nyu.edu](mailto:anv273@nyu.edu). We will try to give constructive feedback on your proposal before spending time on the analysis.

- **Note:** if you are interested in Natural Language Processing applications and are also taking “Natural Language Processing with Distributed Representations” by Prof. Sam Bowman, we are open to the idea of a larger, common final project. The proposal will need to be approved by all parties.
- **Some resources:** We have created a page with some resources and bibliography that you may use as inspiration for your project: <https://docs.google.com/document/d/1Ywj99qfrJ06g7CU3qi0Gar93GqaqhTK61LHiyJVwew/edit?usp=sharing>. It will be updated in the upcoming days.