**Probabilistic graphical models** **2014/2015**

# Final project : 1 — proposal November 25, 2014

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**Joint project with Object recognition and computer vision (RecVis Topic 1.B)**
**- Joint representations for images and text -**

**Main objectif — Multimodal retrival:** image-to-image search, tag-to-image search, and image-to-tag search.

**Objectif of implementations**: building a retrival pipeline using canonical correlation analysis.

**Work plan:**

- Preparation for implementations: generalities on *word2vec*, *Overfeat* and/or *matconvnet* projects.
  - word2vec: ready for feature extraction.
  - Overfeat: extracted certain features, but don't know if it works right: there are minor errors around `convert` and jpeg delegate library(to be rectified if possible).
  - matconvnet: ready for feature extraction.
- Theory studies on graphical models around CCA: according to the paper [1], from two-view CCA to three-view CCA with the third view from semantic/ground truth features.
  - In case of complete absence of ground truth category for some images: recovering absente topics by cluster-based information retrival on tag features.
- Feature extraction: CNN features using *Overfeat* or *matconvnet*; text features using *word2vec*.
  - Bibliographic search on related works: features that are used in the article[1](besides CNN features) and in other related works.
  - Experiments on the pertinence of similarity measures used in references. Find potential mistakes/problems in feature extraction.
- Implemente a retrival system using the two-view and three-view CCAs based on the computed features; compare the performances.