CS 696i: Computer Vision Section

Written Assignment

Due April 7

This assignment should be done as a group.

Congratulations! Your inter-disciplinary research group has produced interesting results on a novel task, namely labeling image regions using a model learned from data with correspondence ambiguity. It would be easier if there was training data which had the parts of images that are relevant to each word identified, but that kind of data is rare and very expensive to create. Instead, you were able to substitute quantity for quality, and data mine images with keywords for the relationships between features and words. To do this you introduced a statistical model for data which is composed of multi-modal parts.

You have one remaining problem: You have run out of research dollars. Thus you have to come up with a new idea which you can sell to a funding agency.

In particular, you should produce a research proposal which follows up on the region-labeling work, and which capitalizes on the strengths of your group.

Possible topics include, but are most emphatically not limited to:
1. Improving the region labeling work, possibly by including more language sense
2. Studying the tasks itself---i.e., what is the link between image annotations and what humans either want to accomplish or perceive.
3. Taking a different approach to region labeling, possibly based on the previous approaches to computational intelligence studied in the course, or any other you wish to propose.
4. Applying the methodology to a completely different kind of data (examples are everywhere).
5. Integrating the methodology (on image/word data or any other data) to build a large scale system which does something that a funding agency might be interested in.

The proposed work should neither be trivial nor impossible. The proposal should clearly address the following issues:

1. The NSF review criterion "what are the broader impacts of the work"
2. The NSF review criterion "what is the intellectual merit of the work"
3. Work seen as merely "incremental" is hard to sell---focus on new ideas. You can use your earlier work in matching words and pictures to attempt to establish credentials, but you have to make it clear what is new.
4. Why are you qualified to do the work? If you have a linguist on board, that suggests a different kind of proposal than one with a psychologist.
5. Figures sell. Please make the captions stand alone. The reviewer wants to read the first paragraph, looks at some figures, skim the first sentence of every paragraph, and be done.
6. Specifics help. It is better to sound like you have a precise plan.

You are limited to 5 pages, excluding references.