Pattern Recognition
Spring 2016

Project:
Proposal, Presentation, Paper, and Code

Project

- **An application research project:** The project demonstrates the application of some techniques discussed in class in an application domain (e.g., text mining, bioinformatics, computer vision, image processing, artificial intelligence etc.). Properties, drawbacks, advantages of the used techniques are analyzed within the context of the explored application domain.

- **A theoretical or methodological research project**: A study of different classes of models and approaches; proving either theoretically or experimentally properties of known algorithms; designing a new approach.

Your Paper on the Project

- Should have the structure of a conference paper;
- Sections:
  - Introduction
  - Background/Previous work
  - Your Approach
  - Experimental Design
  - Experimental Results
  - Analysis of the Results
  - Conclusion and Future Work

Your Paper on the Project

- **Introduction:** Describe the problem; why is important; context; motivating examples; state and summarize the scope and objectives of the project
- **Background/Previous work:** Brief summary of previous work done in the specific area, emphasis is on the limitations; **use this section to demonstrate the relevance of the problem you want to work on**.

Sections (cont.)

- **Your Approach:** Your point of view of the problem; Scope and objectives of the project; Your effort: Proposing a new approach? Comparing existing approaches in terms of… accuracy, efficiency…? Proposing an analysis to achieve a better understanding?

Sections (cont.)

- **Experimental design:** Software, algorithms, data sets used in your experiments; Specify sources: software publicly available used; software/algorithms that you implemented; Experimental setting: training, testing, cross-validation, parameter setting. Validation measures: accuracy, precision, recall, running times, etc.

Sections (cont.)

- **Experimental design (cont.):** If you compare running times of different algorithms, it's important to give the specifics of the machine you used. You need to provide the details necessary to reproduce the results obtained. Do **not** write the steps to install the software you used, and similar system issues.

Sections (cont.)

- **Experimental results:** Describe and comment the results obtained. You should be able to elaborate and answer the questions/ issues raised in the Sections Introduction/ Approach

- **Future Work**: Additional avenues worth exploring. Results obtained suggest new directions?

The Whole Paper

- **Your approach/objective + Experimental Design/Results** is the core of the paper;
- Well organized;
- Well written;
- Ideas are clearly stated;
- Concepts are formally stated;
- Correctness;
- Be precise and concise;
- Max 10 pages (including references);
- Latex highly recommended!!!

Provide a hard-copy on the due date.

Project and Paper

- Don't forget to give a meaningful **title** to your project and paper!!!

Code

- Each project should involve some code writing.
- You are required to turn in your code as well to me.
- You can use Weka, or other tools, e.g. for comparison purposes. **BUT Weka (or similar tools) should NOT be the focus of your project!**