Master of Technology

U2/6: Computational Intelligence I

CA2: SVM

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CA2 assignment overview

- Total CA2: 15 marks
  1. Reading assignment: 6 marks
  2. Programming assignment: 9 marks
- Team work
  - » 3-5 students per team
  - » You are encouraged to work with the same team of your CA1

1. Reading assignment (6 marks)

Select **1 (ONE)** paper from any of the following conferences published in past three years (2015-2018). Summarize (not copy paste) and report your finding and understanding in presentation slides.

- *Annual Conference on Neural Information Processing Systems* (NIPS), https://papers.nips.cc/
- *AAAI Conference on Artificial Intelligence* (AAAI), https://www.aaai.org/Library/AAAI/aaai-library.php
- *International Conference on Learning Representations* (ICLR), https://iclr.cc/Conferences/Papers
- *International Conference on Machine Learning* (ICML), https://icml.cc/

1. Reading assignment (6 marks)

- Deliverable
  - » 1 Powerpoint slide, *.ppt or *.pptx format, not longer than 10 pages, including all cover pages, references, etc.
  - » 1 pdf copy of the paper you studied
- Grading criterion
  - » Your understanding of the novelty of the paper
  - » Your understanding of the use case of the approach proposed in the paper
  - » Your finding on limitation and potential improvement of the approach proposed in the paper

2. Programming assignment

- Objective: Apply the SVM knowledge discussed in class to a applied Multi-class classification project.
- Identify a multi-class classification topic that you are interested in the theme of HEALTHCARE, URBAN, FINTECH, which are three strategic area of AISingapore https://www.aisingapore.org/grandchallenge/
- Obtain dataset related to your business topic, e.g., https://github.com/awesomedata/awesome-public-datasets or other public available dataset

2. Programming assignment

- Grading guideline
  - » Baseline approach (3 marks), e.g., it could be a SVM approach with default parameters provided by toolbox.
  - » Your improved approach (6 marks).
    - ♦ Improve your baseline approach, e.g., apply feature engineering, fine tuning of SVM model parameters, with help of other machine learning methods, etc.
    - ♦ Justify your improved approach in experiments with performance indices.
    - ♦ You are only allowed to use SVM as a classifier, although you can use deep neural network as feature engineering.
    - ♦ No ensemble learning approach is allowed.

2. Programming assignment

- Deliverable
  - » 1 report, *.doc or *.docx format, not longer than 5 pages including all text, figures, tables, references, using the double-column template file "CA2 Report WordTemplate.doc" downloaded in "KE5206\\Lecture Notes\\Day 4 and Day 5 AM (Tian Jing)".
  - » 1 softcopy of your sourcecode written in any programming language. You don't need to include your dataset in your submission if the dataset file size is too big.

CA2 assignment submission

- Submission deadline: 15 May 2018
- Zip all your files of these two assignments into a single zipped file. Please submit only one ZIP file from each team.
- Submit to folder "IVLE KE5206\\Student Submission\\CA2 (Tian Jing)" in IVLE.