WORK IN GROUP: Deadline: 27/05/2021

Sent the pdf file with the work AND source codes by email to leandro.coelho@pucpr.br **SUBJECT**: Computational work 02

Computational work 02:
SVM/SVR, KNN, trees and ensemble approaches

Leandro dos Santos Coelho

Pontifícia Universidade Católica do Paraná (PUCPR), Escola Politécnica
Pós-Graduação em Engenharia de Produção e Sistemas (PPGEPS), Graduação em Engenharia de Controle e Automação (Mecatrônica)
Rua Imaculada Conceição, 1155, CEP 80215-901, Curitiba, PR, Brasil

Universidade Federal do Paraná (UFPR), Graduação e Pós-Graduação em Engenharia Elétrica, Campus Centro Politécnico
Av. Cel. Francisco H. dos Santos, 100, CEP 81530-000, Curitiba, PR, Brasil

e-mail: **leandro.coelho@pucpr.br; lscoelho2009@gmail.com**
Currículo Lattes: *http://buscatextual.cnpq.br/buscatextual/visualizacv.do?id=K4792095Y4*
Google Scholar: *https://scholar.google.com/citations?user=0X7VkC4AAAAJ&hl=pt-PT*
Linkedin: *https://www.linkedin.com/in/leandro-dos-santos-coelho-07a08893/*

Computational work

WORK IN GROUP: Deadline: 27/05/2021
Sent the pdf file with the work AND source codes by email to leandro.coelho@pucpr.br **SUBJECT**: Computational work 02

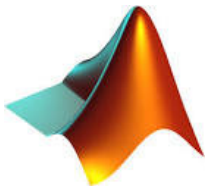
- Adopt 2 case studies: one of **classification** and another of **regression**.
- Apply the SVM/SVR (1 model), KNN (1 model), decision tree model (4 models) (examples of options: classical decision trees, random forest, gradient boosting machine, xgboost, extra trees, extremely randomized trees, and cubist).
- Test 3 setups to **each** model using cross validation with 5-fold.
- **Compare and comment the results** in terms of **classification** performance (confusion matrix, ROC, AUC, F1 score, Kappa) to the classification problem and the performance (R^2, MSE, ...) to the regression problem.

http://www.mathworks.com/help/stats/fitctree.html

http://www.mathworks.com/help/stats/fitctree.html#examples

http://www.mathworks.com/help/stats/classregtree.html

http://www.mathworks.com/help/stats/classregtree.prune.html



Computational work

Suggestion of structure (use IEEE Access format)

https://typeset.io/formats/ieee/ieee-access/b8ddcc27ee434f391d0df476a8e17ffd?source=ieee-text-ad-2&key=z0fi9pl4zz4a8bwe3iyfstwpq0rxdnmzjktnecknf079ctdf7dr8eoaws92h2n5v&gclid=Cj0KCQjwmIuDBhDXARIsAFITC_7dWuXNNDnGOekkr5r4leEHKFzJczWKGMRe5_dl89kRziDTUIZpuUQaAhI3EALw_wcB

Title: Computational work 02

Section 1: Description of the regression problem and/or case studies (subsection 1.1, 1.2, and 1.3)

Section 2: Brief description of the adopted regression models

Section 3: Setup/Hyperparameters tuning of the regression models

Section 4: Analysis of the results with figures, tables and explanations based on performance metrics (see questions of th work)