Course Syllabus: FRA 503 Machine learning

Instructors:

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Times:

Wednesday 9.30-12.30 am.

Course description:

This course provides an introduction to machine learning. Topics include: (i) Introduction to machine learning (first machine learning and machine learning cycle). (ii) Supervised learning (linear regression, logistic regression, k-nn, decision tree, neural networks).(iii) Data preprocessing for machine learning (preprocessing techniques, feature selection, feature extraction) (vi) Unsupervised learning (k-mean clustering, hierarchical clustering, DBSCAN). (v) Introduction to deep learning. The course will also go through the application of machine learning by python programming so that you will also learn how to apply machine learning algorithms to datasets in various fields.

Important dates:

- Due date HW1: 21/9/2022
- Due date HW2: 26/10/2022
- Due date HW3: 16/11/2022
- Due date Project: 30/11/2022, 07/12/2022

Grading

- Homework 60% (#HW=3)
    - Video : 3-5 minutes
    - Code file and report (.ipynb)
- Final project 40% (Get together in groups of three)
    - Presentation
    - Code file and report (.ipynb)

Course Calendar

Time	9:30-12:30	Wednesday	Place: FB306, FIBO		
Week	**Date**	**Lecturer**	**Topic**	**Activities**	**Homework**
1	8/10/22	Bawornsak	Introduction to ML ML Cycle	Lecture	Installing all libraries
2	8/17/22	Bawornsak	First ML	Lecture + Workshop	
3	8/24/21	Paisit	Linear Regression Logistic Regression	Lecture + Workshop	Linear/Logistic HW1 **Assigned**
4	8/31/22	Bawornsak	Preprocessing techniques Feature selection Feature extraction	Lecture + Workshop	
5	9/7/22	Bawornsak	Result Analysis + Hyperparameter Tuning	Lecture + Workshop	
6	9/14/22		**Break**		
7	9/21/22	Paisit	KNN and Decision Tree	Lecture + Workshop	Linear/Logistic HW1 **Due**
8	9/28/22	Paisit	Introduction to Neural Network	Lecture + Workshop	DT/K-NN/NN HW2 **Assigned**
9	10/5/22	Paisit	How neural network learn	Lecture + Workshop	
10	10/12/22	Paisit	Unsupervised Learning - K-mean Clustering	Lecture + Workshop	
11	10/19/22	Bawornsak	Hierarchical Clustering, DBSCAN	Lecture + Workshop	Clustering HW3 **Assigned**
12	10/26/22		**Break**		DT/K-NN/NN HW2 **Due**
13	11/2/22	Paisit	Introduction to Deep Learning	Lecture + Workshop	Project **Assigned**
14	11/9/22		**Break**		
15	11/16/22		**Break**		Clustering HW3 **Due**
16	11/23/22		**Break**		
17	11/30/22	Bawornsak &Paisit	**Final Project Presentation**		Project **Due**
18	12/7/22	Bawornsak &Paisit	**Final Project Presentation**		Project **Due**