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VNU-University of Engineering and Technology



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Vietnam National University, Hanoi

INT3405 - Machine Learning

Lecture 0: Course Introduction

Duc-Trong Le & Viet-Cuong Ta

Hanoi, 08/2023

Course Introduction

- **Course Name/Code:** Machine Learning / INT3405
- **#Credits:** 03
- **Time:**
 - INT3405E 20: 10.00am-1.00pm every Monday (28/08/2023 - 11/12/2023)
 - INT3405E 21: 10.00am-1.00pm every Tuesday (28/08/2023 - 11/12/2023)
- **Course Plan:** 15 weeks ~ 11 lessons + 1 midterm + 3 project presentations
- **Learning outcomes:**
 - Understand basic concepts of machine learning
 - Understand machine learning techniques and algorithms
 - Can use tools/libraries to implement machine learning models
 - Can apply machine learning models in revealing new knowledge
 - Can apply the obtained knowledge to solve real world problems

Lecturer

- **Lecturer: Ta Viet Cuong** (cuongtv@vnu.edu.vn)
 - Office: HMI Laboratory, 307E3
 - Other courses: DSA, Image Processing, Robotics and others
 - 10+ years working on machine learning and related domains
 - Main research directions: Deep Learning Theory and Applications, Reinforcement Learning and Graph Learning.
- **Teaching Assistant: Bang Giang Le** (banggiang@vnu.edu.vn)

Course Materials

- **Primary Textbook:**

- Athem Alpaydin (2010). *Introduction to Machine Learning*, The MIT Press.
- Kevin P. Murphy (2012). *Machine Learning: A Probabilistic Perspective*, The MIT Press.

- Reference Textbook:

- Christopher M. Bishop (2006). *Pattern Recognition and Machine Learning*, Springer
- Ian Goodfellow and Yoshua Bengio and Aaron Courville (2016). *Deep Learning*, MIT Press
- Deisenroth, Marc Peter, A. Aldo Faisal, and Cheng Soon Ong. *Mathematics for machine learning*. Cambridge University Press, 2020.

Course Outline

- Week 1: Introduction
- Week 2: General Concepts
- Week 3: Linear Regression
- Week 4: Classification (1) - Logistic Regression, Bayes
- Week 5: Classification (2) - Random Forest, KNN
- Week 6: Classification (3) - SVM & Variants
- Week 7: Feature Selection & Model Optimization
- Week 8: Unsupervised Learning
- Week 9: Mid-term Exam
- Week 10: Deep learning (1) - Perceptron, MLP
- Lecture 11: Deep learning (2) - CNN, RNN
- Lecture 12: Introduction to MLOps
- Lecture 13-15: Project Presentation

Course Assessment

- Class Attendance: 10% (3rd week onwards)
- Coding Exercise: 10% (randomly select)
- Mid-term Exam: 20%
 - MCQ + 2-3 practical questions
- Final Project: 60%
 - Group project: A team of 3 students
 - Goal:
 - Choose a problem of a given list, i.e., datasets
 - Implement ML algorithms
 - Evaluate and improve the algorithms
 - Presentation report





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Thank you

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Q&A Sections

Email me
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