ISOM 3340 – Developing AI Applications (2019-20 Fall Term)

General Information

- 1 Credit (graded Pass or Fail)

- Lecture + Lab: Sat 09:30AM - 01:00PM (4 weeks)   Rm: LSK G005

- Course Website: http://www.canvas.ust.hk/

- Instructor: Dr. Jean WANG <jeanwang@ust.hk>   Rm: LSK 5050A (office hour by appointment)

- TA: Mr. Charles WONG <imcharles@ust.hk>   Rm: LSK 4065 (office hour by appointment)

Course Description

The use of artificial intelligence (AI) becomes an emerging trend in various business areas. Although business automation with information technology has been a common practice for a long period of time, the automation of complex tasks that requires heavy data processing capabilities, particularly unstructured data analysis such as image recognition and natural language processing, becomes feasible only with the growth of AI researches. Many businesses leverage AI technologies to aid or even replace data processing tasks, like financial credit risk analysis and handwriting recognition, that are traditionally handled by human.

This course is intended to train students to learn and develop AI applications by using practical and popular development tools. Students will learn basic AI models and analyze their advantages and disadvantages when they are applied in AI applications. The course is divided into 4-day intensive classes. It consists of two parts. The first part covers basic machine learning algorithm and models. The second part introduces hands-on labs for training, testing and evaluating AI applications using AI development tools.

Course Intended Learning Outcomes
- Identify current AI development trends
- Classify common AI models and understand their characteristics
- Analyse the potentials of AI technology in business applications
- Train and tune AI models from business data sets
- Develop AI applications using existing tools

Assessments and Weighting

- **Lab Exercises (40%):** week 1 to week 5
  These are individual continuous assessments. Each week, students are given real-world business problems and a series of instructions. They are required to follow the instructions to complete the development tasks, which add intelligence into the business applications using pre-trained AI services. After finishing, students need to demonstrate in class or submit the code to present the deployment of the AI models.

- **Group Projects (60%):** end of semester
Students will form in a group of 3 to 4 and submit a slide deck (20 – 40 slides) with a sample model on a business idea that leverages AI technology. The idea could be decided on your own or referring to online materials (see the References section). The assessment criteria are based on business values and model design of the idea. Having a deployment prototype of the AI application is not necessary but a plus. Each group should also include a workload distribution table in the slides indicating each member's contribution in %.

The project submission deadline is **Nov 22 (Fri) 11:59pm**.

Teaching Schedule

WK	Lecture Topic	Lab Exercise
1 (Sep 7)	- Course Overview - Introduction to Machine Learning and AI - IBM Watson Studio & Watson Machine Learning	Lab1 - Financial Credit Risk Analysis
2 (Sep 14)	*No Class (Public Holiday)*	
3 (Sep 21)	- Chatbot Development - IBM Watson Assistant	Lab2 - Chatbot for Customer Service
4 (Sep 28)	- Natural Language Processing - IBM Watson Natural Language Understanding	Lab3 - News Sentiment Analysis
5 (Oct 5)	- Visual Analysis - IBM Watson Visual Recognition	Lab4 - Image Classifier

References

- Artificial Intelligence: A Modern Approach
http://aima.cs.berkeley.edu/

- Artificial Intelligence – IBM Developer
https://developer.ibm.com/patterns/category/artificial-intelligence/

- IBM Watson Redbooks
https://www.redbooks.ibm.com/Redbooks.nsf/domains/watson

- Unlock the Power of AI with IBM Watson
https://www.ibm.com/cloud/ai

- IBM Cloud Documentation
https://cloud.ibm.com/docs