The 2020 MCUT-UNIB Artificial Intelligence Online Workshop

No.	Date	Topic	Course outline	Course Instructor
1.	10/13	AI lecture for overview (I)	1. Course Introduction 2. What is AI? 3. History of AI. 4. Applications of AI. 5. Categorization of AI.	**Jiun-Wei Liou**
2.	10/15	AI lecture for overview (II)	1. Introduction of data science. 2. Introduction of (basic) machine learning. 3. Introduction of deep learning. 4. Future thoughts of AI.	
3.	10/20		Assignment and Tutorial	**Hendy Santosa**
4.	10/22	Machine Learning Essential – R/Python Hands-on and Theoretical Background	1. Business Problems and Data Mining/Machine Learning Tasks Set 2. Dimensionality Reduction and Principal Component Analysis 3. Clustering Analysis	**Ching-Shih Tsou**
5.	10/27	Machine Learning Essential – R/Python Hands-on and Theoretical Background	4. Association Rule Mining 5. k Nearest Neighbors 6. Tree-Based Models (Classification Trees, Regression Trees, and Model Trees incl.)	
6.	10/29		Assignment and Tutorial	**Arie Vatresia**
7.		Machine Learning Essential – R/Python Hands-on and Theoretical Background	7. Naïve Bayes Classification (text processing incl.) 8. Support Vector Machines 9. Bagging and Boosting	**Ching-Shih Tsou**
8.	11/3		Assignment and Tutorial	**Ruvita Faurina**
9.	11/5	AI in Smart Grid (I)	1. Introduction to AI 2. Machine Learning vs. Deep Learning 3. Supervised learning 4. Perceptron	**Yu-Hsiu Lin**
10.	11/10	AI in Smart Grid (II)	1. Multi-layer perceptron (MLP)	

Commented [z1]: Please merge this section and add unsupervised classification for reinforcement learning seperately

Commented [z2]: PCA can be inserted into this meeting

No.	Date	Topic	Course outline	Course Instructor
			2. MLP applied on iris data for iris flower classification 3. A case study: AI in load management	
11.	11/12		Assignment and Tutorial	**Novalio Daratha**
12.	11/17	Image recognition- Introduction to Computer Vision	1. Low-level vision: image processing, edge detection, feature detection, cameras, image formation 2. Geometry and algorithms: projective geometry, stereo, structure from motion, optimization 3. Recognition: face detection / recognition, category recognition, segmentation	**Meng-Jey Youh**
13.	11/19	AI-based Face recognition - Image Transformations	1. Dowload code from Github 2. Affine Transformation 3. Homograohy & Perspective Transformation 4. Face Recognition	**Chuang-Jan Chang**
14.	11/24	AI-based Face recognition- OpenCV Basics - 2	1. DrawOver Image 2. Mouse Handling 3. Read， Write Over Image & Display	
15.	11/26		Assignment and Tutorial	**Hendy Santosa**
16.	12/1	Image recognition- Convolutional Neural Networks, CNN	1. History and definition of CNN: Neocognitron (a self-organizing neural network model for a mechanism of pattern recognition). 2. Algorithm architecture: convolutional layer, pooling layer, Relu layer, fully connected layer, loss layer 3. Applications: image recognition, video analysis, natural language processing, time series forecasting, etc. 4. Convolutional neural networks for visual recognition.	**Meng-Jey Youh**
17.	12/3	Image recognition- Region-based CNN, R-CNN	1. Definition of R-CNN 2. Extended algorithm: fast R-CNN, masked R-CNN, Mesh R-CNN, YOLO 3. Application of region-based convolutional neural network	
18.	12/8		Group Presentation and Course Feedback	UNIB & MCUT

Course time: 18:30~ 21:30 (Indonesian time), **Tuesdays & Thursdays**

Commented [z3]: Can use the deep learning and classification

Teacher presentation

1. **Ching-Shih Tsou** / Prof. C.-S. (Vince) Tsou, Ph.D., Dept. of Mechanical Engineering/ AI&DS Research Center, MCUT
2. **Meng-Jey Youh** / Prof. M.-J. Youh, Ph.D., Dept. of Mechanical Engineering, MCUT
3. **Chuang-Jan Chang** / Asst. Prof. C.-J. Chang, Ph.D., Dept. of Electronic Engineering, MCUT
4. **Yu-Hsiu Lin** / Asst.Prof. Y.-H. Lun, Ph.D., Dept. of Electrical Engineering, MCUT
5. **Jiun-Wei Liou** / Asst.Prof. J.-W. Liou, Ph.D., Dept. of Electronic Engineering, MCUT

Reviewing the syllabus:

We recommend that the syllabus can also cover the subjects bellow:

1. Convolutional Neural Network, and PCA
2. Quantum Learning
3. Unsupervised Learning for Reinforcement