

**CCK 1:****Development of Fall Prediction through Machine Learning Model for Biophysiological Signals in Determining the Underlying Cause of Fall among Elderly**

Fall incident is common among the elderly population. Many efforts and biomarkers have been developed among the researchers and clinician in understanding and determining the underlying cause of fall among the elderly. However, the use of transcranial Doppler ultrasound (TDU) technology in inspecting the fall has not been fully investigated. TDU measures the cerebral blood flow velocity (CBFV), and electromyography signals (EMG). In this study, we ought to use the frequency domain coupled with machine learning in understanding the cause of the fall. With the outcomes of this study, this will assist the clinicians and therapists in deciding suitable treatments in a faster manner.

**CCK 2:****Computational Fluid Dynamics Model Development in Assessing Covid-19 Transmission Risk in Hospital Settings**

The unsettling of Covid-19 pandemic is an alarming issue in most of the countries. Numerous efforts have been carried out in curbing and containing the disease. Front liner, particularly the doctors and nurses are vulnerable to the disease. This could be because of contained space effect in hospital. Visitors and patients of other illness will contribute more to the tension of virus transmission in hospitals. However, the risk of transmission in hospital has not been investigated at the current state-of-art. Hence, we ought to utilize the computation fluid dynamics (CFD) approach in assessing the transmission risk. Several parameters such as humidity and temperature will be taken into consideration. The outcome of this study will be beneficial for hospital authorities in deciding the proper standard of procedures.

**CCK 3:****Covid-19 Pandemic: Development of Machine Learning Model in Determining the Transmission Risk in Local and Imported Cases**

The Covid-19 pandemic is an alarming issue in most of the countries. Efforts have been carried out in curbing the virus transmission, such as social distancing, physical distancing, and border controls. However, these efforts have been ineffective as the number cases are surging in several countries. Local transmission and the imported cases have been reported in daily reports, particularly in Malaysia. The imported cases have been a pain in Malaysia lately, which can be seen in Sabah and Kedah states. As such, we ought to develop the machine learning model in predicting and determining the transmission risk in local and imported cases. With the outcomes

of this study, this will assist the government bodies in making decision in relaxing or tightening the border.

#### **CCK 4:**

#### **Deep Learning Model Development for Human Motion Biomechanics Indicators in Speed and Age Prediction**

Movement control among the elderly has been a pain among the clinicians and rehabilitation therapist today. This population has been seen to have relatively slower speed compared to the young ones. Additionally, speed is seen to be a promising biomarker in detecting the deterioration of health among the elderly. However, speed indicator has neglected and has not been fully studied in the current state-of-the-art. As such, we ought to develop an automated machine learning model in determining and predicting speed deterioration due to different age. With the outcomes of this model, this will assist the clinicians and therapists in deciding suitable treatments in a promptly manner.