



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

PHD STUDENT SEMINAR

Reducing Overtreatment for UA/NSTEMI patients using machine learning

By

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Abstract

Whether or not to perform Coronary Angiography(CA) facing an Unstable angina(UA) / Non ST segment elevation myocardial infraction(NSTEMI) patient come to outpatient department is a difficult challenge for Cardiology physicians. With similar symptoms, their CA result may diverge drastically between slight and severe coronary artery stegnosis. Overtreatment such as CA for patient with slightly coronary artery stegnosis means unnecessary intervention operation with risk and a waste of medical resources. A better risk stratification separating slightly stegnosed patients from others hence is required. In our work, 161 Patients' medical record with Unstable angina(UA) / Non ST segment elevation myocardial infraction(NSTEMI) and Coronary Angiography result from Shanghai 1st People's hospital was collected. Their medical record and Electrocardiography(ECG) were used to predict whether or not they have severe blockage. Models were trained on our collected dataset combined with information from public dataset. A C-statistic 0.84 was obtained compared to the traditional HEART score (0.69). In addition, at specificity 90%, our model could reduce 63% overtreatment compared to current diagnose procedure. This research showed the possibility to squeeze more information from current examination to achieve better risk stratification for UA/NSTEMI using machine learning.

Date : 5 May 2021 (Wednesday)

Time : 4:15pm

Zoom Meeting : <https://hkust.zoom.us/j/5906683526> (Passcode: 5957)

All are Welcome!