

Technology Development Group

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Monitor Alarm Fatigue Allevation By SuperAlarms - Predictive Combination Of Alarms

Tech ID: 27580 / UC Case 2011-719-0

SUMMARY

UCLA researchers in the Department of Neurosurgery have developed a method that is capable of mining a collection of monitor alarms to search for specific combinations of encoded monitor alarms to predict certain adverse event, such as in-hospital code blue arrests or other target events.

BACKGROUND

Bedside monitoring in critical care units and emergency rooms involves multimodal monitors that simultaneously measure and display relevant vital parameters, allowing for continuous monitoring of a patient and informing medical staff of the changes in general condition of the patient. However, frequent false alarms not only create annoying distraction but also can cause alarm fatigue for bedside caregivers so that attentions to critical alarms are missed, raising serious patient safety concerns. False alarms can be caused either due to noise and artifacts in signals or by inappropriate alarming criteria that are too generic and sensitive. Most of the time, only a small percentage of alarms have been found to be true positive and clinically relevant in a medical ICU and an emergency room setting. Therefore, it is imperative to develop strategies to improve patient monitor alarm generation and management.

INNOVATION

Researchers at UCLA have developed an alarm data mining method to automatically mine collections of raw bedside physiological monitor alarms, or event markers from other medical devices to create a set of predictive combinations of single encoded alarms, which is termed SuperAlarm. Extracted patterns arising from a combination of different single alarms can be used to predict certain adverse event, such as blue code events. Bedside caregivers will then be prompted with SuperAlarm for a deteriorating patient.

APPLICATIONS

Medical monitoring

ADVANTAGES

·Improved alarm management and enhanced patient safety

RELATED MATERIALS

▶ Hu, X., Sapo, M., Nenov, V., Barry, T., Kim, S., Do, D.H., Boyle, N. and Martin, N., 2012. Predictive combinations of monitor alarms preceding in-hospital code blue events. Journal of biomedical informatics, 45(5), pp.913-921.

PATENT STATUS

Country	Туре	Number	Dated	Case
United States Of America	Issued Patent	9,600,990	03/21/2017	2011-719

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INVENTORS

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OTHER INFORMATION

KEYWORDS

Association rule mining, alarms,

cardiac arrest, code blue, alarm

fatigue, alarm mining

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