

Artificial Intelligence and Early Warning Systems

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Abstract

Early warning systems (EWS) are designed to effectively and efficiently disseminate appropriate information related to disaster events, in the form of alarms or warnings, to vulnerable communities before or during a disaster so that proactive and preventive measures can be taken to minimize the loss and damage associated with such events. With the advent of the Internet of Things and the advanced technology driven sensor devices, large amounts of data is getting generated at a rapid speed. This data needs to be captured, stored and analysed by EWS, since it possesses useful indicators and could provide enormous opportunities for monitoring and managing both natural and manmade disasters. The use of artificial intelligence (AI) can enable EWS to mine early warning signals from this data, so that proactive and preventive measures for disaster mitigation, preparedness, response and recovery can be planned leading to timely alerts and warnings being disseminated to the relevant stakeholders. In this paper, an overview of EWS and AI based machine learning techniques capable of being used for designing such systems are discussed. Further, an overview of various real world examples of AI based EWS are also outlined.

Keywords

Disaster Management, EWS, Machine Learning