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Intelligent Alerting Approach Based on WiFi Channel State Information Sensing for Earthquake Precocious Signs

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Traditional sensing techniques are recognized to be labor and technically intensive for practical adoption. As a result, researchers are employing alternate sensing techniques. One of the major technologies for sensing environment is variations in WiFi channel state information (CSI) that describes the channel state between the transmitter and the receiver. With its sensitivity to environmental dynamics, due to it ubiquity WiFi signal is now widely used for a variety of sensing applications in indoor environments, such as gesture recognition and fall detection, in addition to its primary usage for communication. WiFi based sensing offers non-contact sensing in a private mode, simultaneous sensing and data transmission without additional connection infrastructure, and remote sensing without handheld sensors. In this paper, we propose a new approach based on data collected from WiFi-CSI analysed in pretrained machine learning model to detect precocious signs of earthquake, caused by the first energy emitted by an earthquake, the P waves, which rarely cause damage but cause some environment changes like some ceiling lights move and some static objects shake slightly, movements that affect electromagnetic waves and can be sensed with wireless signals through CSI .

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Promotional text

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