ID: **P4.3-568**   Type: **E-poster**

# of Human Activity Recognizer as Android Smartphone Digital Filter for Earthquake Signal Processing

Wednesday, 21 June 2023 10:50 (1 minute)

Smartphone accelerometers can be used to record earthquake signals to support disaster mitigation in Indonesia. Human activities produce significant noise to accelerometer data on smartphones. Human activity recognizer (HAR) functions to sort out human activity signals from earthquake signals recorded by smartphone accelerometers. This study aims to reduce the linear acceleration signal of human activity on the Android smartphone accelerometer. The HAR application as a smartphone accelerometer digital filter includes several design stages, namely data collection, feature extraction, activity data classification and determining the Butterwoth type filter design based on activity data. These activities include sitting, standing, lying down, walking and running. The Butterworth type digital filter is designed based on the dominant frequency of the human activity acceleration signal. This filter is installed in the server program and then tested against activity signals carried out in the Central BMKG earthquake simulator. The test results show an increase in the percentage of earthquake signals from 3.87% to 64.61% and a decrease in the percentage of human activity signals from 96.13% to 35.39%.

Promotional text

Combining artificial intelligence and seismic signal processing for further improvements.

E-mail

haryas.wicaksana@bmkg.go.id

Oral preference format

in-person

Primary authors: Mr WICAKSANA, Haryas (Indonesia Agency for Meteorological Climatological and Geophysical (BMKG));   Mr AGUNG NUGROHO, Hapsoro (Sekolah Tinggi Meteorologi Klimatologi dan Geofisika)

Presenter: Mr WICAKSANA, Haryas (Indonesia Agency for Meteorological Climatological and Geophysical (BMKG))

Session Classification: Lightning talks: P2.5, P4.1, P4.2, P4.3

Track Classification: Theme 4. Sustainment of Networks, Performance Evaluation, and Optimization: T4.3 Enabling IT Technologies