

Nat. Hazards Earth Syst. Sci. Discuss., community comment CC3
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Reply on CC1

Fahim Sufi

Community comment on "A Scenario-based Case Study: AI to analyse casualties from landslides in Chittagong Metropolitan Area, Bangladesh" by Fahim Sufi et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2022-90-CC3>, 2022

We are grateful that you found our paper interesting. You are absolutely right about the motivation of this paper. Traditionally, the decision makers had to rely on data scientists to analyze data and to generate AI driven insights (which is time consuming). However, our unique solution allows the mobile phone to automatically select the right AI algorithms to execute on the right set of scenario-driven data. The insights are presented in the decision makers mobile phone in a natural language (meaning data scientists are not required to interpret the AI driven insights).

This research would enable decision makers to harness the power of AI on their mobile devices. Hence, using the AI driven insights, the decision makers can make informed and timely decisions.

I appreciated all your valid queries. Following are responses to your three queries:

1) There are very few studies on mobile App based disaster management (e.g., landslide, tornado, flood etc.). However, these studies mainly focused on using GPS capability of mobile for data collection. Following is an example:

- Sujeet Kumar Sharma, Santosh K. Misrab, Jang Bahadur Singha, "The role of GIS-enabled mobile applications in disaster management: A case analysis of cyclone Gaja in India", International Journal of Information Management, Vol. 51, No. 102030, 2020

However, the existing studies reported in literature didn't use AI capability on mobile Apps for generating AI based insights. In our most recent studies, we have reported AI based insights on Mobile Apps. Following are some examples our related publications:

- F. K. Sufi and M. Alsulami, "Knowledge Discovery of Global Landslides Using Automated Machine Learning Algorithms," in IEEE Access, vol. 9, pp. 131400-131419, 2021, doi: 10.1109/ACCESS.2021.3115043.

- F. K. Sufi and I. Khalil, "Automated Disaster Monitoring From Social Media Posts Using AI-Based Location Intelligence and Sentiment Analysis," in IEEE Transactions on Computational Social Systems, doi: 10.1109/TCSS.2022.3157142.

In this paper, we used local landslide data of CMA, Bangladesh and made the AI driven insights available to senior decision makers for the very first time to measure the usability of such system.

2) Computational loads are shared between the Mobile Apps (called Microsoft Power BI Mobile App) and Microsoft Cloud (called Microsoft Power BI Service). The seamless integration between Microsoft Power BI Mobile App and Microsoft Power BI Service provide good experience to the senior decision maker on their mobile app. With increase in computational load, the fully scalable Microsoft Power BI Service (i.e., Microsoft Cloud)

dynamically assign more computational resources to provide faster AI driven sights to the decision makers. Further technical details on Microsoft Power BI Service is located at <https://docs.microsoft.com/en-us/power-bi/fundamentals/service-basic-concepts>.

3) Figure 11 to Figure 14 demonstrated the usability of the proposed system via deployed mobile apps both in iOS and Android platform through Microsoft Power BI Mobile App. In other words, these are not web applications running through the mobile web browsers. Microsoft Power BI Mobile App is available in all mobile platforms like windows, iOS, and Android within their respective app stores. More details on Microsoft Power BI Mobile App could be found at <https://docs.microsoft.com/en-us/power-bi/consumer/mobile/mobile-apps-for-mobile-devices>.