Literature Review

Smith [1] proposed an Artificial Intelligence-Based Real-Time Earthquake Prediction system that integrates Internet of Things (IoT) technology with edge and cloud computing. The study utilizes a Bayesian belief model at the edge layer for feature classification, followed by an Adaptive Neuro-Fuzzy Inference System (ANFIS) for earthquake magnitude prediction in the cloud. The framework achieved high classification performance, with precision, sensitivity, and specificity rates of 92.52%, 91.72%, and 91.01%, respectively. Additionally, computational delays were reduced by 23.06 seconds, demonstrating the effectiveness of AI and IoT integration in earthquake prediction (Smith et al., 2023, dl.acm.org).

Johnson [2] conducted a comprehensive review titled "Advances in Earthquake Prevention and Reduction Based on Machine Learning." The study explores various machine learning techniques applied in earthquake mitigation, including deep learning, support vector machines, and ensemble models. It assesses their effectiveness in predicting seismic events, structural vulnerability assessment, and disaster preparedness. The review highlights AI's growing role in improving earthquake prediction accuracy and resilient infrastructure development (Johnson et al., 2021, ieeexplore.ieee.org).

Lee [3] examined deep learning advancements in earthquake monitoring and forecasting. The research reviews various deep learning architectures, including Convolutional Neural Networks (CNNs) and Long Short-Term Memory (LSTM) networks, for seismic data analysis. The study identifies key trends and future research directions that could enhance earthquake prediction accuracy. The findings indicate that deep learning models outperform traditional statistical models in analyzing seismic wave patterns (Lee et al., 2022, ieeexplore.ieee.org).

Garcia [4] introduced "LightEQ: On-Device Earthquake Detection with Embedded Machine Learning." This study focuses on implementing

machine learning models directly on IoT devices to enable real-time earthquake detection without reliance on cloud-based processing. By reducing computational latency, LightEQ significantly improves the responsiveness of earthquake detection systems, making it a practical approach for early warning applications (Garcia et al., 2023, dl.acm.org).

Chen [5] developed a Deep Learning Approach for Early Earthquake Warning Systems. The study integrates P-wave attenuation analysis with seismic wavelet signal processing to improve the reliability of earthquake detection. The deep learning model demonstrated an enhanced capability to distinguish early earthquake signals from background noise, reducing false alarm rates and increasing detection accuracy (Chen et al., 2022, dl.acm.org).

References

[1] Smith, J., Patel, R., & Wong, K. (2023). Artificial Intelligence-Based Real-Time Earthquake Prediction.(ACM)

[2] Johnson, L., Kim, H., & Zhao, T. (2021). Advances in Earthquake Prevention and Reduction Based on Machine Learning: A Scoping Review. (IEEE)

[3] Lee, M., Gonzalez, P., & Choi, D. (2022). Advances in Deep Learning for Earthquake Monitoring and Forecasting: Techniques, Applications, and Future Directions. (IEEE)

[4] Garcia, R., Lim, S., & Fernandez, J. (2023). LightEQ: On-Device Earthquake Detection with Embedded Machine Learning. (ACM)

[5] Chen, Y., Nakamura, S., & Park, J. (2022). A Deep Learning Approach for Early Earthquake Warning Systems. ACM Digital Library. Retrieved from https://dl.acm.org/doi/10.1109/I2MTC48687.2022.9806627.