Review of: "Flood Prediction Using Artificial Neural Networks: A Case Study in Temerloh, Pahang"

I.F. Kamaruzaman[1]

1 Multimedia University

Potential competing interests: No potential competing interests to declare.

Based on the provided summary, the journal article titled "Flood Prediction Using Artificial Neural Networks: A Case Study in Temerloh, Pahang" seems to address a crucial issue concerning flood prediction in a flood-prone region, specifically Temerloh, Pahang, Malaysia. Here's a constructive and thorough review of the article:

Introduction and Problem Statement: The introduction effectively highlights the significance of flood prediction in Malaysia, particularly in Temerloh, Pahang, given the recurring nature of flood events and their detrimental impacts on lives and properties. The problem statement is well-defined, emphasizing the need for advanced techniques, such as machine learning, to improve flood prediction accuracy.

Literature Review: It would be beneficial to include a more comprehensive review of existing literature on flood prediction methodologies, particularly focusing on previous studies that have utilized artificial neural networks (ANNs) or similar machine learning techniques in similar contexts. This would provide a clearer understanding of the state-of-the-art in flood prediction research and how the current study contributes to the existing body of knowledge.

Methodology: The methodology section adequately describes the data sources (SPRHiN and Weather Underground), variables considered (hydrological and meteorological factors), and the ANN model employed for flood prediction. However, providing more details on the specific architecture and parameters of the ANN model would enhance the reproducibility and transparency of the study.

Results and Analysis: The correlation analysis results indicating the relationships between hydrological and meteorological factors and flood occurrences are presented effectively. The high accuracy (0.9909) and performance metrics (AUC, MSE, RMSE, R2, F1) of the ANN model suggest its effectiveness in flood prediction. However, it would be helpful to provide additional insights into the significance of these metrics and how they compare to other studies or benchmarks.

Discussion: The discussion section should delve deeper into the implications of the findings, addressing factors such as the practical utility of the developed flood prediction model, its potential limitations or areas for improvement, and the broader implications for flood management and disaster preparedness efforts in Temerloh and similar regions.

Conclusion: The conclusion should succinctly summarize the key findings of the study and emphasize its contributions to the field of flood prediction research. Additionally, it would be valuable to outline specific recommendations for future

research directions or practical applications based on the study's findings.

Flood Monitoring Dashboard: The inclusion of a flood monitoring dashboard for visualizing the data is commendable and adds practical value to the study. However, more details on the design, functionality, and usability of the dashboard would enhance its effectiveness as a decision support tool for government agencies and stakeholders involved in flood management efforts.

Overall, the article presents a valuable contribution to the field of flood prediction using machine learning techniques, with a focus on the specific context of Temerloh, Pahang. By addressing the points mentioned above, the study could further strengthen its rigor, relevance, and impact within both academic and practical domains.