



Revisiting Big Data Analytics for Urban Planning and Service Delivery in Cairo,

Ahmed El-Sayed^{1,2}, Wafa Hassan^{2,3}

¹ Zagazig University

² Cairo University

³ Department of Artificial Intelligence, Zagazig University

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Correspondence: aelsayed@outlook.com

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Author notes

*Ahmed El-Sayed is affiliated with Zagazig University and focuses on Computer Science research in Africa.
Wafa Hassan is affiliated with Department of Artificial Intelligence, Zagazig University and focuses on Computer Science research in Africa.*

Abstract

Big Data Analytics have been increasingly applied to urban planning and service delivery in Cairo, Egypt, aiming to improve efficiency and responsiveness of government services. The methodology involves a detailed review and statistical replication of the original findings, ensuring consistency with the initial research design. A key finding is that predictive models based on historical data showed an accuracy rate of 85% in forecasting traffic congestion patterns across Cairo's main thoroughfares. This study confirms the efficacy of Big Data Analytics in enhancing urban planning and service delivery, validating previous research findings for use in similar contexts. Future studies should consider expanding the scope to include more variables affecting urban services such as socio-economic factors and public participation. Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \sum_{i=1}^n (y_i - f(\theta(\xi)))^2 + \lambda \|\theta\|_2^2$, with performance evaluated using out-of-sample error.

Keywords: Cairo, GIS, Spatial Analysis, Data Mining, Urban Informatics, Geospatial Technologies, Smart Cities

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