# Spatio-Temporal Analysis of Assault with Dangerous Weapons: Uncovering Land Use Correlates of Violent Crime in Malaysian Urban Centres

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*This study investigates armed assaults (Section 324 offences) in Kuala Lumpur and Putrajaya (2015–2020) by integrating police crime records with high-resolution GIS land use data. Using optimized Hot Spot Analysis (Getis-Ord Gi*), we identify significant spatio-temporal clusters. Assaults concentrate in transit corridors and institutional or commercial zones during evening hours, while residential areas show heightened night-time risk. Violence is not randomly distributed; rather it correlates with land use and time-of-day. These findings challenge conventional criminological models and advocate GIS-driven, multidisciplinary crime prevention. The results guide targeted environmental design interventions and predictive policing for safer urban spaces.*

*Keyword: Art in CPTED, assault crime, land use, optimized hot spot analysis, time in hour*

## Introduction

Urban transformation in metropolitan regions such as Kuala Lumpur and Putrajaya is proceeding at an unprecedented pace, fundamentally reconfiguring the urban landscape into a heterogeneous mosaic that engenders novel socio-spatial dynamics and imposes multifaceted challenges on public safety. Traditional criminological paradigms including Cohen and Felson (1979) routine activity theory and Brantingham and Brantingham (1993a) and Brantingham and Brantingham (1993b), crime pattern theory have long emphasized the convergence of motivated offenders, suitable targets, and insufficient guardianship as critical determinants of criminal behavior. However, these frameworks exhibit limitations in explicating the complex interplay between rapidly evolving urban land use and the temporal variability of violent crimes. In this regard, the present study seeks to advance criminological discourse by integrating high-resolution Geo-