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Title: Urban Street Typology Classification and Similarity Search Using Openly Available Urban Data: A Data-Driven Approach to Street Analysis through Movement and Place Characteristics

Urban streets perform simultaneous movement, spatial and public-realm functions, yet comparable streets are often identified through local classifications or professional judgement rather than a common cross-city analytical framework. This dissertation develops and evaluates a reproducible approach for classifying and retrieving urban street precedents using openly available spatial data. The study uses 3,682 street segments across London, Barcelona, Singapore and Tokyo and represents each segment through ten standardised features describing street geometry and network structure, surrounding built form, and mapped activity and amenity. K-means clustering was evaluated from K=2 to K=12 and a nine-cluster solution was retained as a balance between statistical separation and substantive differentiation. Repeated subsampling showed that agreement with the full-sample solution increased as more observations were retained, while principal component analysis supported interpretation of the multivariate cluster structure. The nine resulting typologies included Active Mixed-Use Streets, Amenity-Rich Public Realm Streets, Movement-Intensive Active Streets, lower-activity built environments, Short Connected Activity Streets and a small but distinctive Sinuous Streets group. Their prevalence varied substantially between cities, demonstrating both recurring street