

**Abstract:** This thesis addresses the challenge of social group detection in crowds, presenting an algorithm informed by sociological insights into common group formations among pedestrians. Our proposed algorithm demonstrates comparable performance to existing solutions – Time-sequence DBSCAN and Agglomerative Hierarchical Clustering with Hausdorff Distance, using the DIAMOR dataset for testing and comparison. Additionally, we introduce a validator tool potentially capable of refining results from existing algorithms based on a group shape criterion, leading to improved accuracy in identifying groups.

Keywords: groups detection; clustering; group shape analysis; pedestrian behavior;