

1. Record Nr.	TD16025298
Autore	Ullah, Habib
Titolo	Crowd Motion Analysis: Segmentation, Anomaly Detection, and Behavior Classification [Tesi di dottorato]
Editore	University of Trento, 2015-02-16
Lingua di pubblicazione	Non definito
Formato	Tesi di dottorato
Livello bibliografico	Monografia
Note	In relazione con http://eprints-phd.biblio.unitn.it/1406/
Sommario	<p>The objective of this doctoral study is to develop efficient techniques for flow segmentation, anomaly detection, and behavior classification in crowd scenes. Considering the complexities of occlusion, we focused our study on gathering the motion information at a higher scale, thus not associating it to single objects, but considering the crowd as a single entity. Firstly, we propose methods for flow segmentation based on correlation features, graph cut, Conditional Random Fields (CRF), enthalpy model, and particle mutual influence model. Secondly, methods based on deviant orientation information, Gaussian Mixture Model (GMM), and MLP neural network combined with GoodFeaturesToTrack are proposed to detect two types of anomalies. The first one detects deviant motion of the pedestrians compared to what has been observed beforehand. The second one detects panic situation by adopting the GMM and MLP to learn the behavior of the motion features extracted from a grid of particles and GoodFeaturesToTrack, respectively. Finally, we propose particle-driven and hybrid approaches to classify the behaviors of crowd in terms of lane, arch/ring, bottleneck, blocking and fountainhead within a region of interest (ROI). For this purpose, the particle-driven approach extracts and fuses spatio-temporal features together. The spatial features represent the density of neighboring particles in the predefined proximity, whereas the temporal features represent the rendering of trajectories traveled by the particles. The hybrid</p>

approach exploits a thermal diffusion process combined with an extended variant of the social force model (SFM).

Localizzazioni e accesso

http://memoria.depositolegale.it/*/http://eprints-phd.biblio.unitn.it/1406/1/PhD_Thesis_Habib.pdf
