A review of behavior mechanisms and crowd evacuation animation in emergency exercises

应急演练的行为机制和群体疏散动画综述

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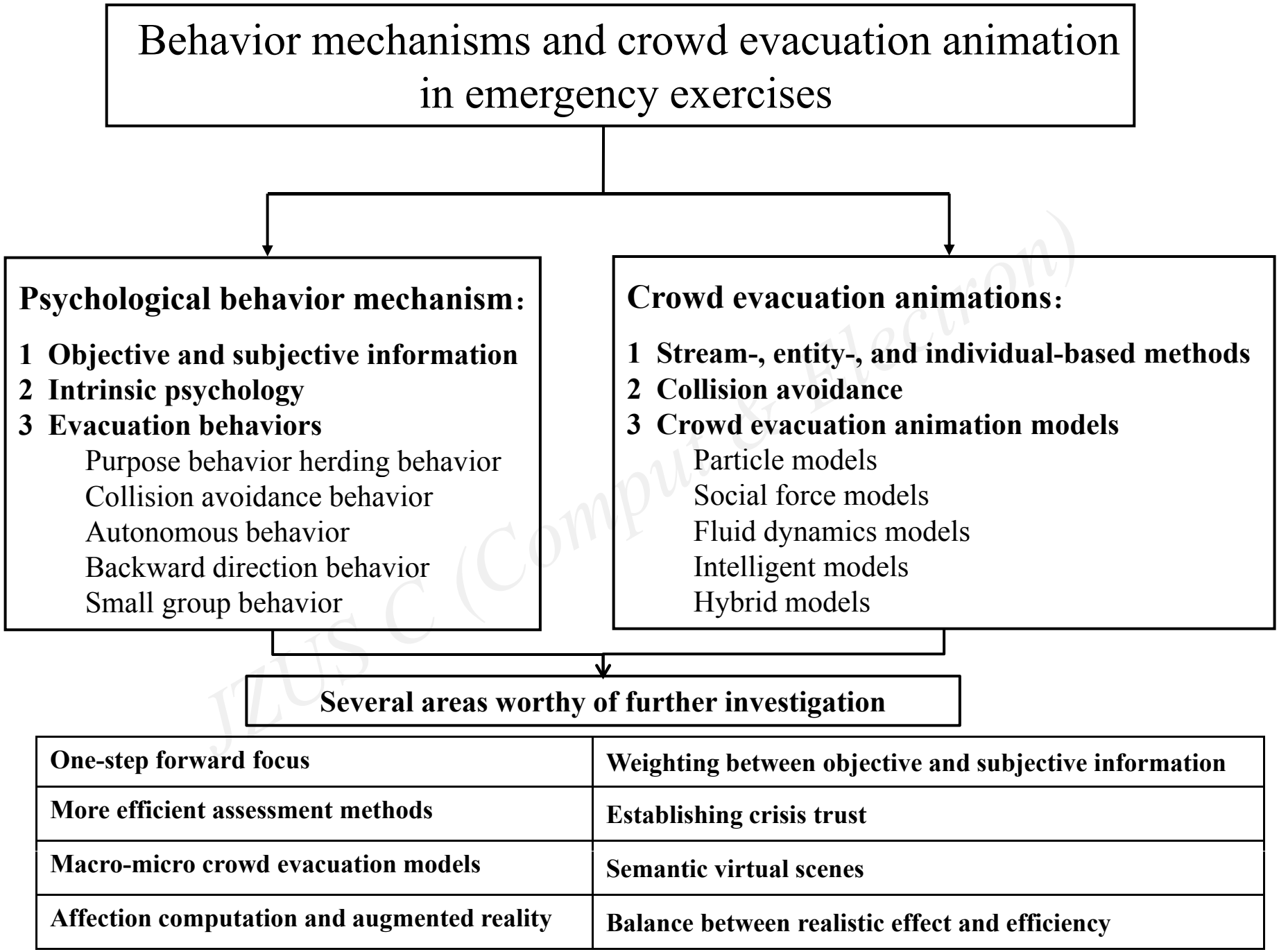

Behavior mechanisms and crowd evacuation animation in emergency exercises
Psychological behavior mechanism:
1 Objective and subjective information
2 Intrinsic psychology
3 Evacuation behaviors
Purpose behavior herding behavior
Collision avoidance behavior
Autonomous behavior
Backward direction behavior
Small group behavior
Crowd evacuation animations:
1 Stream-, entity-, and individual-based methods
2 Collision avoidance
3 Crowd evacuation animation models
Particle models
Social force models
Fluid dynamics models
Intelligent models
Hybrid models
Several areas worthy of further investigation
One-step forward focus
Weighting between objective and subjective information
More efficient assessment methods
Establishing crisis trust
Macro-micro crowd evacuation models
Semantic virtual scenes
Affection computation and augmented reality
Balance between realistic effect and efficiency

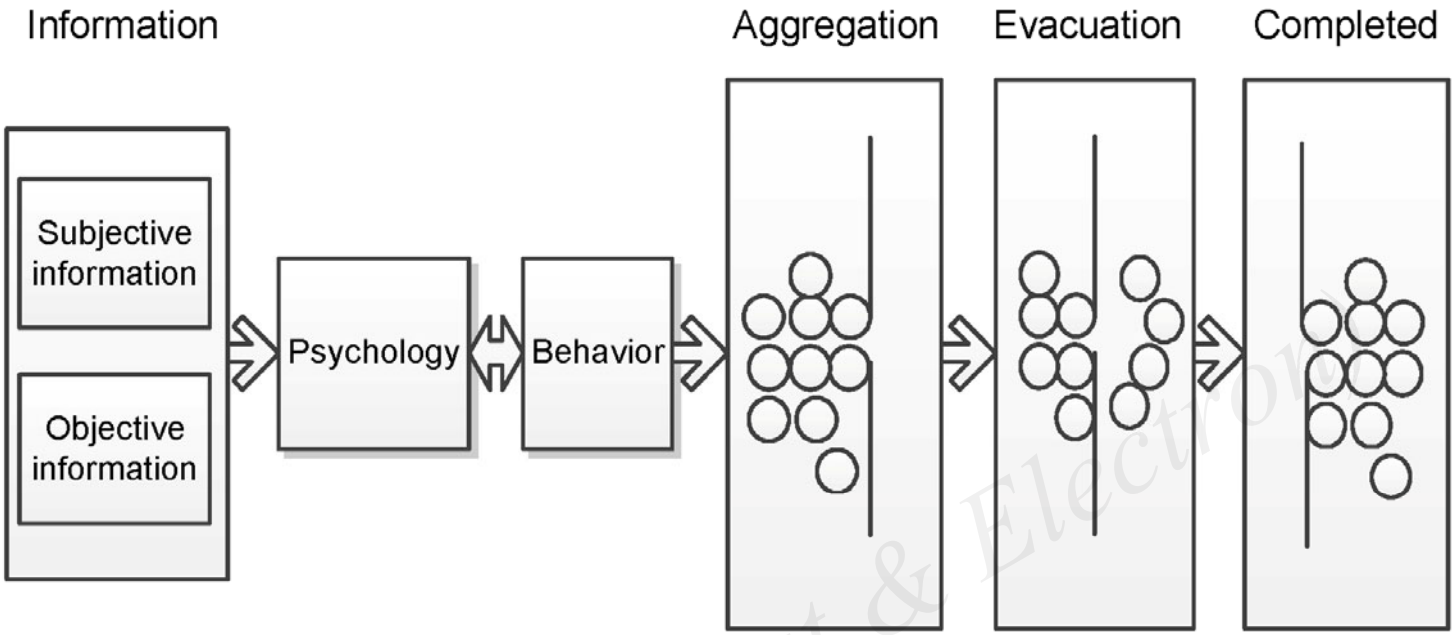
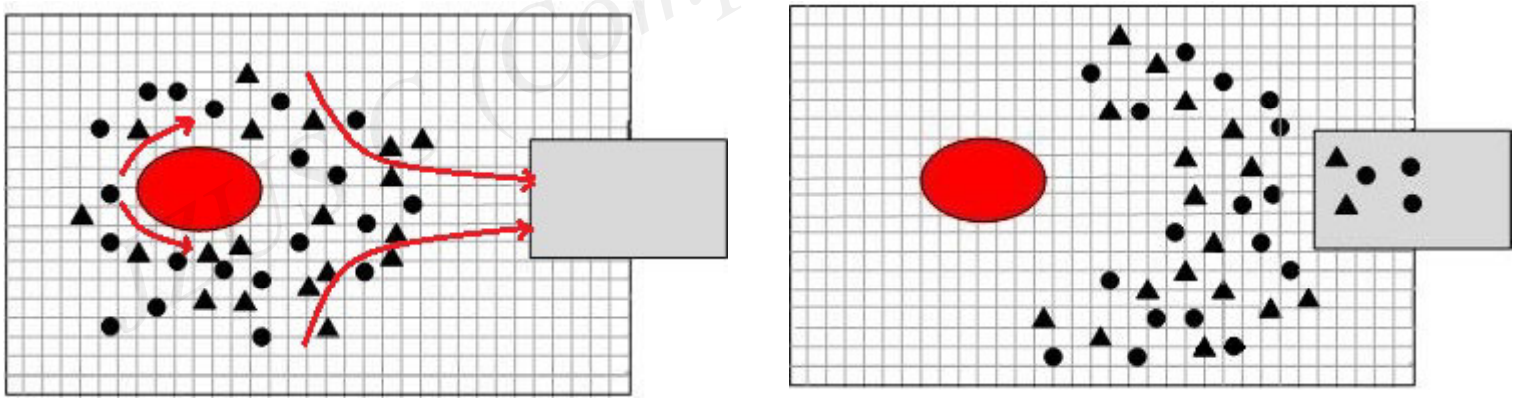


Fig. 1 Six stages of the analysis of a logical crowd behavior pattern



(a) Fire emerging scenario (b) Crowd evacuation scenario

Fig. 2 Crowd evacuation animation under fire condition using a social model