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Abstract:

VELOS, which stands for "Virtual Environment for Life On Ships", is a multi-user VR system that aims to support designers, early in the design process, to assess passenger and crew activities on ship and improve ship design accordingly. VELOS functionalities provide design aids required for both normal and hectic operational conditions. This has been accomplished by integrating a broad range of software components in VELOS platform which includes tools targeting geometric and VR modelling, crowd microscopic modelling based on steering behaviours technology, as well as communication interfaces with external computational software packages. In the present work, we focus on the evacuation-specific functionality of VELOS by enhancing it with passenger-grouping and crew-assistance behaviour. This is mainly achieved by combining and extending steering behaviours, already used within VELOS, for crowd modelling, as, e.g., Leader-Follow and Cohere behaviour. This enhancement allows simulating the evacuation process more realistically and comparing results acquired for the scenarios prescribed by the IMO, with and without the consideration of grouping and crew-assistance behaviour.