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virtually evident

Preparing and guiding forensic crime scene inspections in virtual reality

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Forensic question

Computer-based scene reconstruction is a method for answering a **specific forensic question** in the context of an accident or crime. For the resulting 3D scene reconstruction and **presentation to a prosecutor**, the use of virtual reality (VR) technology is a novel presentation form.

We consider user interactions for the roles of author, moderator and spectator in a VR presentation. An exemplary reconstructed scene is used (Fig. 1). Undercover police officers try to apprehend a suspect, who is able to fire a shot, injuring one officer.

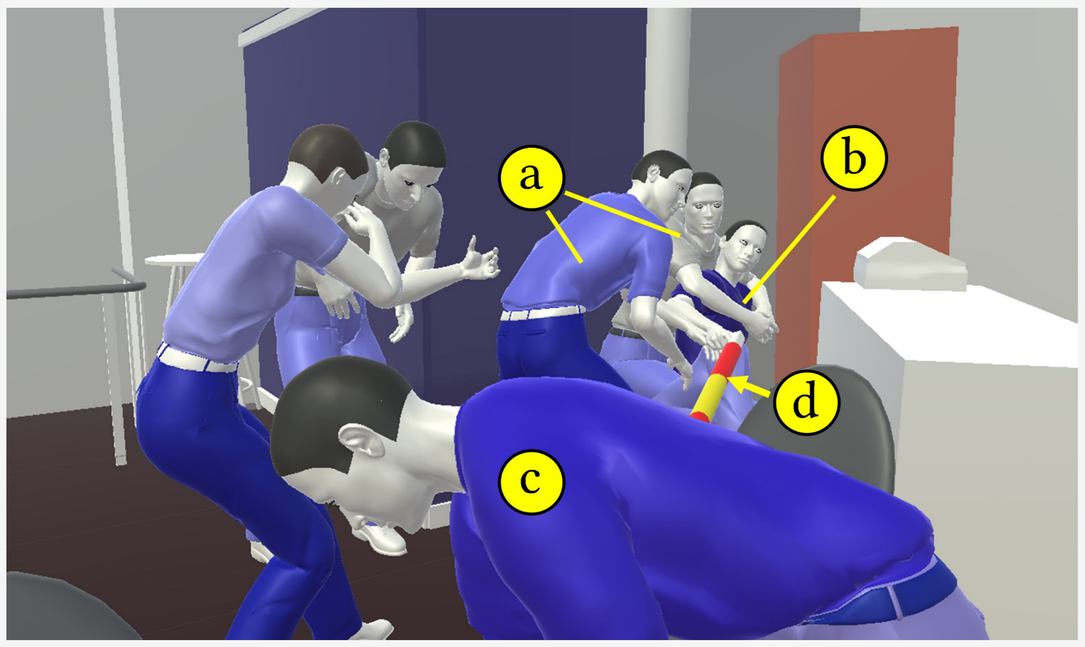

Fig. 1. Officers (a), suspect (b), injured person (c), line of fire (d)

Annotations, and moderator guidance

Fixed textual annotations impair readability in VR regularly (Fig. 2, left). A **limitation of annotations** to the specific viewpoint or "gaze" of the user clears the viewing field (Fig. 2, right). Still, scene content has to be put into context, which awards **special significance to the moderator**.

The moderator "**teleports**" the spectator to author-defined viewing locations in the course of the presentation. To discuss open questions, the spectator can move on its own afterwards (Fig. 3).

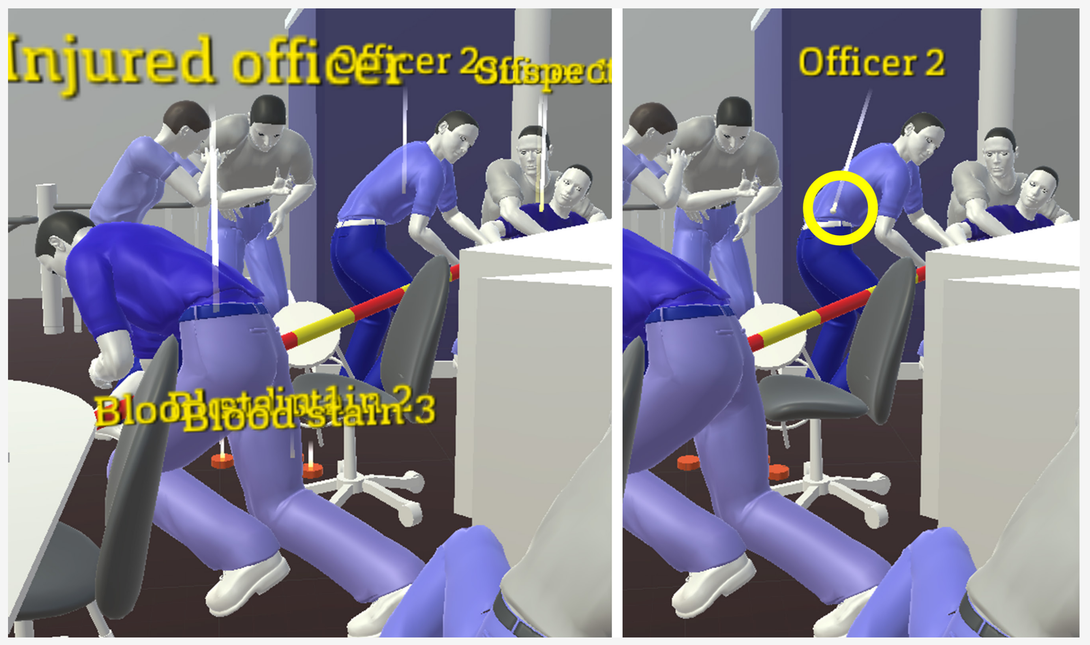

Fig. 2. Left: annotation overlap. Right: gaze pointer controlled

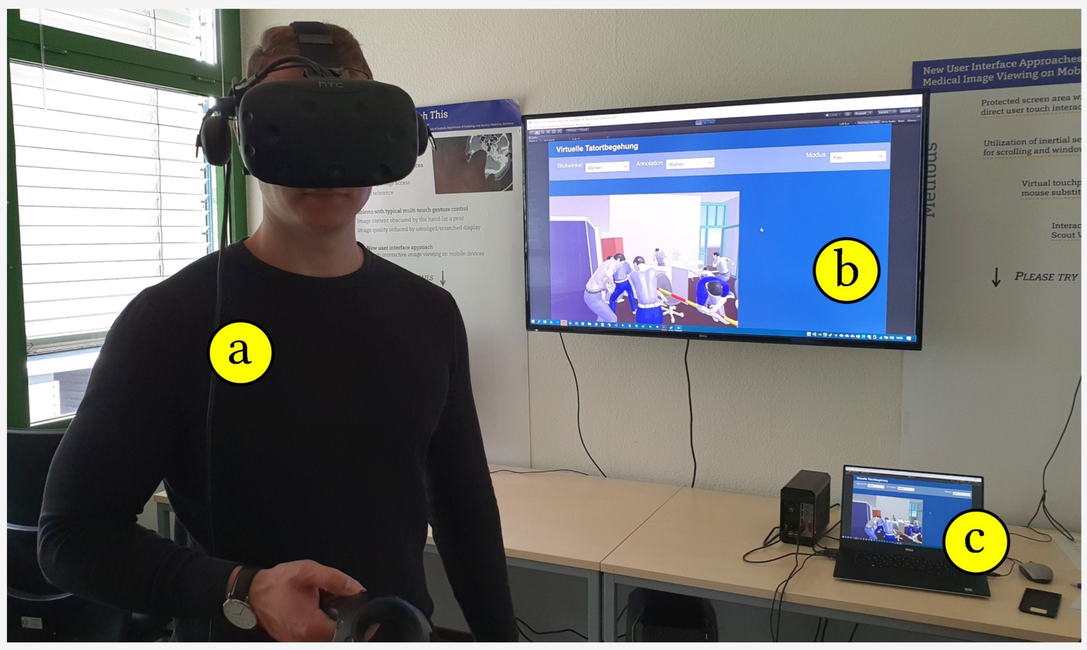

Fig. 3. Spectator (a), audience display (b), moderation seat (c)

User experience

12 test users evaluated the system assuming the role of the spectator, using the User Experience Questionnaire (UEQ). The UEQ results were positive, with 1.9 for *attractiveness*, 2.0 for *perspicuity,* 1.3 for *efficiency*, 1.5 for *dependability*, 2.3 for *stimulation,* and 2.1 for *novelty.*

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