

The Rocketbox library and the utility of freely available rigged avatars for procedural animation of virtual humans and embodiment

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As part of the open sourcing of the Microsoft Rocketbox avatar library for research and academic purposes, here we discuss the importance of rigged avatars for the Virtual and Augmented Reality (VR, AR) research community. Avatars, virtual representations of humans, are widely used in VR applications. Furthermore many research areas ranging from crowd simulation to neuroscience, psychology, or sociology have used avatars to investigate new theories or to demonstrate how they influence human performance and interactions. We divide this paper in two main parts: the first one gives an overview of the different

methods available to create and animate avatars. We cover the current main alternatives for face and body animation as well introduce upcoming capture methods. The second part presents the scientific evidence of the utility of using rigged avatars for embodiment but also for applications such as crowd simulation and entertainment. All in all this paper attempts to convey why rigged avatars will be key to the future of VR and its wide adoption.