Ellic’s Exercise Class: an Active VR Game for Fitness

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Abstract—In this work, we present an active VR game called “Ellic’s Exercise Class”. Ellic is a cartoonish elephant character who will guide and assist the player in the game. This game is a set of seven mini exercise games (exergaming), including ball blocking, goalkeeper, volleyball, archery, skeet, baseball, and shooter. The screenshots for the gameplay are shown in Fig. 1. We design and develop this game to promote physical activities. The game requires the player to move hands, arms, and body to interact with sporting gameplay events. We set up a restricted zone to protect players from hitting surroundings. Game objects are cartoon-looking low-polygon meshes with simple textures which reduces the rendering load. Motions of controllable objects such as balls and arrows are simulated with the physics simulation component. They correspond to realistic collisions and interactions. For example, in the volleyball game, the player may bounce a ball at its bottom or spike it from the top. With the physics simulation, the ball reacts according to the gravity, hit point, collisions, and the force added by the player.

Keywords—Exergaming; Virtual reality; Human-computer Interaction;

Fig. 1 Screenshots of the game view. (a) is the level select scene, (b) is the ball blocking game, (c) is the volleyball game, and (d) is the archery game.

Video Link: https://youtu.be/_rkuoIvLSy4. This video shows the basic game concept and gameplay.