**Ultimate Disc Golf in Hyperspace** is a sports simulation game in virtual reality. The player can travel to surreal and colorful disc golf courses in hyperspace. The disc throwing and flight dynamics are very similar to real life, but virtual reality gives the player some additional abilities (e.g. teleportation and enhanced control over disc's flight).

The main idea is similar to real world Disc Golf - the player has to reach the end portal with the least amount of throws. Levels consist of islands and a variety of obstacles, while the disc is used as a teleportation device to move between the islands. To reach the end, there are often multiple paths with varying difficulty.

The game was designed with a focus on realistic disc flight trajectories and ease of use. Most actions are intuitive and need no instructions. It has been tested by over 50 users and user interface was improved iteratively.

**Disc aerodynamics.** Unity physics engine covers only translational and rotational mechanics. Aerodynamic physics script was implemented to make the disc fly like it would in a real world. Aerodynamic constants can be changed to simulate different discs (e.g. putter, mid-range, driver, etc.).

**Custom made models.** All assets - materials and 3d models - in the game are custom made. That includes sound effects and background music. The only exceptions to this rule are HTC Vive controllers and logo of University of Tartu.

**Level editor.** Building good levels requires placing objects and testing the result intermittently. Level editor that allows navigation similar to pinch-zoom on mobile devices was implemented. User can also teleport to a desired location and reset the scale to instantly see the result from player perspective. Navigation script changes the users position, rotation and scale instead of moving the gameworld itself. This would allow multiple users to work on the same level without conflict in future builds.

**7 playable levels.** Currently the game has seven playable levels. There is a special tutorial level that is designed to familiarize first time players with controls. Levels have different styles and difficulties. Moving platforms, stationary and moving obstacles are designed to make the game more fun to play. High scores tracking is implemented to allow users to compete against each other.

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2. V. R. Morrison "The Physics of Frisbees", Missouri University Physics Department, 2005