# CGS Brief – Deterministic Replay

## Deterministic Replay

Create a portable system that can record player inputs in a sequence for replayability purposes, this can then be added to a 'player' GameObject to replay the sequence. These sequences are able to be recorded to a file that it loads from before use.

## Proof-of-Concept Application

What to think about when creating the application:

- Your game should be deterministic.
- It should record the initial state of the game system on the first frame and then record the necessary player data.
- Your inputs should be quantized to be recorded and able to be read from.
- To showcase your system working you will need to make a game where it is meaningful to see a replay of the player. For example:
    - This could be completed as part of a time trial racing game where an initial input sequence is recorded as a given track's best time and then replayed to compete against, this could then be overwritten if the player beats the AI, immortalising their run until they are superseded.
    - This could be completed as part of a 2D platformer, using replays of the player's movements in the level in order to overcome obstacles in a level, for example; triggering traps, using them as platforms, ect.

## Extension

How can we take this further to showcase a skillset in a portfolio piece.

- Have the system watch for gameObjects that are tags and able to be recorded for replayability.
- Combine with a state system to save the replay and enable the player to skip to certain points.
- Allow a camera to perform dynamic movements around the replay.
- Create a debugging menu that lets the user fast forward or rewind the sequence, hopping between different states