Omni-wheel Based Circular Orbit Flight Simulator for G-Force Generation

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Simulation of G-Force is most prevalently used in flight simulators. Flight simulators are profitable and allow pilots to train against extreme conditions. Due to Covid-19, the demand for flight simulators is rapidly increasing. For example, Asiana airlines had to operate flights without passengers because they had to retain their credentials during the pandemic. G-Force simulators that people normally use such as for VR attractions or simple 4D simulators only replicate the angular acceleration not the gravitational pull. Although the US military already has the G-Force simulator which can replicate the gravitational pull, it costs about $19 million, occupies a large space, and has complex mechanics. We aim to develop a flight simulator that allows the pilot to feel the correct direction and amount of gravity, and is overall simple, cheap, and less space-consuming.

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