**<Pilot learning/response simulation with selective/permanent perception model>**

How human interacts and recognizes information from environment is significantly different from how the machine does; especially in a sense of ability to perceive information simultaneously. This rule applies identically to controlling mechanism of an aircraft. Auto pilot computers perceive at ‘least’ 12 inputs (since it is 6DOF control) simultaneously to appropriately guide/control aircraft. However, human cannot process more than 3 information in short period. What human does is to selectively perceive information that is thought to be needed. In a concise word, human has **limited number of inputs** thus they have to go through **selection process** on which information they are going to look at (the cockpit indicator for example).

By utilizing neural networks and RL algorithm, it is possible to learn the mechanism of human’s information process to control aircraft. To model human process in a simple manner, there will be only **one input that can be selectively perceived by human (selective information)**, which symbolizes the action of eye focusing at certain indicator. Several more inputs will be categorized as **‘naturally felt information’, which is perceived at all times** such as G-force, visual horizon cue, otolith orientation cue. Selective information is provided only if the pilot model decides to ‘watch’ that information (This is modeled through perception decision output variable). When changing information, there will be time delay modeling eyeball movement and perception process.

Value function which scores how well the aircraft is following certain route, and policy function deciding the control output of pilot model will be trained. The purpose of this project is to find out the **mechanism of human model selecting information** during controlling aircraft and **simulation of phenomenon due to confusion** (spatial disorientation, for ex.).