

## A05 – Perspective and View Matrices

In this assignment, you have to define two procedures to create respectively the view and the projection matrices.

The exercises has a slider that can be used to set the Fov-y of the camera (i.e. to zoom in and out), and the 3D canvas changes size with respect to the window. In this way, the aspect ratio of the display can be changed by resizing the window. You have to define procedure `perspective(w, h, fov)` that returns the required perspective transformation matrix. The size of the window is passed in parameters `w` and `h`, while the Fov-y selected in the slider is passed in parameter `fov`. The code for computing the right perspective projection matrix should be inserted in file `perspective.js`.

Next you have to provide the procedure that creates the view matrix for the application, contained in file `view.js`. If you read the table at the bottom of the screen, you can see the keys for rotating / moving the view in all possible directions and rotations (6 degrees of freedom). In particular, you have to define procedure `view(cx, cy, cz, alpha, beta, rho)` that returns a Look-in-direction matrix, centered in `cx`, `cy`, `cz`, and angled according to angles `alpha`, `beta` and `rho` (as defined during the lessons).

As in other assignments, you are not allowed to use any library function that either creates the projection or the view matrix. You can instead use any other function to deal with matrices and basic transformations.

Pressing the spacebar allows to check if the provided solution is correct, by adding a ghost view of the ship with the correct matrix.