Exercise 3: **Axis of Rotation**

Consider the sequence of rotations

$$^{A}\mathbf{R}_{B} = \texttt{Rot}\,[z, 90^{\circ}] \cdot \texttt{Rot}\,[x, 90^{\circ}]$$

mentioned in the lecture notes on page 30. Open the file „Exercise03.m“ and write a program in order to animate this rotation around a single axis:

a) Define the rotation matrix $^{A}\mathbf{R}_{B}$ as `R`. Use the MATLAB functions `rotx` and `rotz`.

b) Calculate a 1 by 4 vector called `axang`. This vector should contain the unit vector components and the rotation angle for the given rotation. Use the MATLAB function `rotm2axang` and the matrix `R` for this task.

c) Inside the for loop, animate the rotating cuboid:

- Calculate the current rotation matrix for each angle `phi`. You can use the MATLAB function `axang2rotm`
- Draw the moving cuboid using the function `DrawCuboid(...)`. It will return a patch object.
- Pause the execution for 0.1 seconds using the MATLAB command `pause`.
- Delete the patch object from the figure by using the `delete` command.

During the animation, the output window should look like this: