**3D calibration:**

Here we provide the scripts to calibrate the cameras for triangulating body landmarks.

Cameras are calibrated with known real-world objects (Lego® plates). To map 2D coordinates to the 3D known coordinates we first take pictures of the Lego® plates from each of the four cameras. In each Lego® plate the top of each brick is painted with fluorescent markers. To assign each brick to its known 3D coordinates use the script *detect\_lego\_markers\_simple\_cl.m*. Instructions on how to run this interactive script are provided in *CalibrationInstructions.ppt*.

For estimating camera matrices use the script *calibrate\_cameras\_cl.m*. This script use the direct linear method (script *DLT\_simple\_cl.m* see help therein) to estimate each camera matrix P separately. Triangulation is then obtained via LS linear triangulation (script *ls\_triangulate.m*) that can be applied to an arbitrary number of views. The script *calibrate\_cameras\_cl.m* also generates a figure showing nominal and estimated 3D coordinates of Lego® plates as in **Supplementary Figure 1f**.