Workflow Bolanos et al. :

Step 1: Open a new scene in Blender (v2.83+), and copy the mouse model from OSF (<https://tinyurl.com/OSF-mCBF>) (0 - Blender Projects - Mouse Model and Example Scenes/C57BL6\_Female\_V1.2\_opensource-file.blend)

Step 2: Recreate experiment rig in Blender and add camera & lighting objects (tutorial on OSF: /5 - Video Tutorial/synthetic-data\_tutorial.mp4).

Step 3: Animate the mouse model and apply noise to limbs and render the fake behavioural video while also exporting the ground truth label positions using script (mCBF-2d-3d\_marker-extraction.py <https://github.com/ubcbraincircuits/mCBF>).

Step 3: Image domain transformation to transfer style from real mouse videos onto the rendered animation (U-GAT-IT model. Parameters used are specified in supplemental table 1) (<https://github.com/znxlwm/UGATIT-pytorch>).

Step 5: 2D pose estimation training with ground-truth label locations from synthetic data using DeepLabCut (<http://www.mousemotorlab.org/deeplabcut>).

Step 6: “lifting” 2D pose with ground truth joint locations in 3D mouse model to 3D pose estimation using custom jupyter notebook based on the linear model by <https://github.com/una-dinosauria/3d-pose-baseline/blob/master/src/linear_model.py>.