

Parameters

These parameters control how X4D processes [digitally reconstructed radiograph](#) (DRR) and X-Ray images.

Parameter	Description	Default Value
Constant DRR Scaling	This boolean controls whether or not to scale the DRRs for each view by a constant value for all iterations of an optimization. If false, each DRR will be scaled so that its maximum value is equal to the DRR image scale value in the X-Ray and DRR Settings widget . If true, a single scale value will be calculated during the first iteration and be used to scale the DRRs in all subsequent iterations.	
Eval Bright Threshold	This parameter is used together with <i>Eval Good Threshold</i> when performing a detailed evaluation of a bone pose. A pixel is considered “bright” if its intensity in the DRR image is greater than <i>Eval Bright Threshold</i> . The range is from 0.0 to 255.0	The default is 150.0.
Eval Good Threshold	This parameter is used together with <i>Eval Bright Threshold</i> when performing a detailed evaluation of a bone pose. A pixel's fitness is considered “good” if the difference between the DRR and the X-ray intensities is less than the <i>Eval Good Threshold</i> . The range is from 0.0 to 255.0.	The default is 50.0.
Frame Envelope 4D Pass1	This field contains the number of frames near the control point to evaluate during the first pass of 4D optimization. A value of 0 means to evaluate only the frame in each view that is closest to the control point. A value of 3 means to evaluate the closest frame plus the next 3 closest frames on each side of the control point, for a total of seven.	The default value is 1.
Frame Envelope 4D Pass2	This field contains the number of frames near the control point to evaluate during the second pass of 4D optimization. A value of 0 means to evaluate only the frame in each view that is closest to the control point. A value of 3 means to evaluate the closest frame plus the next 3 closest frames on each side of the control point, for a total of seven.	The default value is 3.
Frame Spacing 4D Pass1	This field contains the interval of the reporting times when generating the pose map for the first pass of the 4D optimization algorithm. For the optimization, a pose map is created by evaluating the object's pose map at every Nth reporting time.	The default value is 5.
Frame Spacing 4D Pass2	This field contains the interval of reporting times when generating the pose map for the second pass of the 4D optimization algorithm. For the optimization, a pose map is created by evaluating the pose map optimized in the first pass at every Nth reporting time.	The default value is 3.
Mocap Seed Spacing	This field contains the interval of the reporting time that will be used to generate motion capture seed poses. If the value entered is N then the motion capture data will be evaluated at every Nth reporting time of the X-ray data to generate the motion capture seed pose map.	The default setting is 5.
Pose Map Cutoff Frequency	This field contains the low-pass cutoff frequency for smoothing the cubic splines in the POI pose map. If the value is set to 0.0 or less the smoothing is turned off.	The default value is 20.0.

Parameter	Description	Default Value
Simulated Annealing Temperature	This field contains the initial temperature for the simulated annealing algorithm. The higher the initial temperature, the more slowly the search range will narrow during the optimization.	The default value is 2000.
X-ray Opacity	This field contains the opacity of the X-ray images in the 2D and 3D windows. Their opacity should be less than 1.0 so that the DRRs can be seen on top of them.	The default value is 0.5.

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