

aiVolumeMatching

aiVolumeMatching finds the best possible orientation of one volume relative to a reference.

aiVolumeMatching needs a configuration file provided by the **-u** argument. Some options can be overwritten using command line arguments.

Options are:

CudaDeviceID

The deviceID of the GPU to use.

Argument for command line: **-d** or **--CudaDeviceID**

Type: **int**

Option is mandatory: **false**

Default value if not set: **0**

LP

Low pass filter value.

Argument for command line: **-lp** or **--LP**

Type: **float**

Option is mandatory: **true**

LPS

Low pass filter sigma value.

Argument for command line: **-lps** or **--LPS**

Type: **float**

Option is mandatory: **true**

HP

High pass filter value.

Argument for command line: **-hp** or **--HP**

Type: **float**

Option is mandatory: **false**

Default value if not set: **0**

HPS

High pass filter sigma value.

Argument for command line: **-hps** or **--HPS**

Type: **float**

Option is mandatory: **false**

Default value if not set: **0**

MotiveList

If a motive list is provided, the found displacement can be stored there as reference displacement.

Type: **string**

Option is mandatory: **false**

Default value if not set: **"**

FixedReference

The filename of the volume that is used as reference.

Type: **string**

Option is mandatory: **true**

MovingVolume

If no motive list is provided, the filename of the volume that needs to be oriented on the reference. If a motive list is provided, the reference index of the reference to align.

Type: **string**

Option is mandatory: **true**

OutputVolume

If provided, the best displacement is stored in this file.

Type: **string**

Option is mandatory: **false**

Default value if not set: **"**

Mask

Mask filename.

Type: **string**

Option is mandatory: **false**

Default value if not set: **"**

RotateMask

Indicates if the reference mask has to be rotated with the particle orientation.

Type: **bool**

Option is mandatory: **true**

MaxShift

Maximum allowed shift (or set MaskCC filename)

Type: **int**

Option is mandatory: **false**

Default value if not set: **0**

MaskCC

MaskCC filename. Naming convention: filename.em/mrc.

Type: **string**

Option is mandatory: **true**

Only applicable if **MaxShift** = -1.

RotateMaskCC

Indicates if the CC-Mask has to be rotated with the particle orientation.

Type: **bool**

Option is mandatory: **true**

Only applicable if **MaxShift** = -1.

AngIter

Number of angular search increments.

Type: **int**

Option is mandatory: **true**

AngIncr

Angular search increment.

Type: **float**

Option is mandatory: **true**

PhiAngIter

Number of angular search increments for phi angle.

Type: **int**

Option is mandatory: **true**

PhiAngIncr

Angular search increment for phi angle.

Type: **float**

Option is mandatory: **true**

CouplePhiToPsi

Indicates if the phi angle is coupled to psi (can be necessary for restricted search ranges).

Type: **bool**

Option is mandatory: **true**

CorrelationMethod

Defines the correlation method to use: 'Cross-Correlation' or 'Phase-Correlation'.

Type: one of [**CROSSCORRELATION**, **PHASECORRELATION**]

Option is mandatory: **true**

Possible notations:

- **CROSSCORRELATION**: CROSSCORRELATION, CROSS-CORRELATION, CROSS_CORRELATION, CrossCorrelation, Cross-Correlation, Cross_Correlation, crosscorrelation, cross-correlation, cross_correlation
- **PHASECORRELATION**: PHASECORRELATION, PHASE-CORRELATION, PHASE_CORRELATION, PhaseCorrelation, Phase-Correlation, Phase_Correlation, phasecorrelation, phase-correlation, phase_correlation

SubPixelRatio

For values > 1, the shift is determined with sub-pixel precision. 2=0.5 pixel shift, 4=0.25 pixel shift, etc.

Type: **int**

Option is mandatory: **false**

Default value if not set: **1**

Symmetry

If provided, the found displacement is added to the symmetry file as an additional symmetry displacement.

Type: **string**

Option is mandatory: **false**
Default value if not set: **"**

RigidScan

Scan Psi angles with fixed angular distance (equal to PhiAngIncr).

Type: **bool**

Option is mandatory: **false**

Default value if not set: **false**

PreRotation

Apply a fixed rotation to the moving volume before scanning rotations. Values are for (phi, psi, theta).

Type: **float3**, three float values

Option is mandatory: **false**

Default value if not set: **(0, 0, 0)**

CCFile

If provided, the CC value for all scanned angles is stored in a pseudo motive list (one entry per scanned rotation).

Type: **string**

Option is mandatory: **false**

Default value if not set: **"**