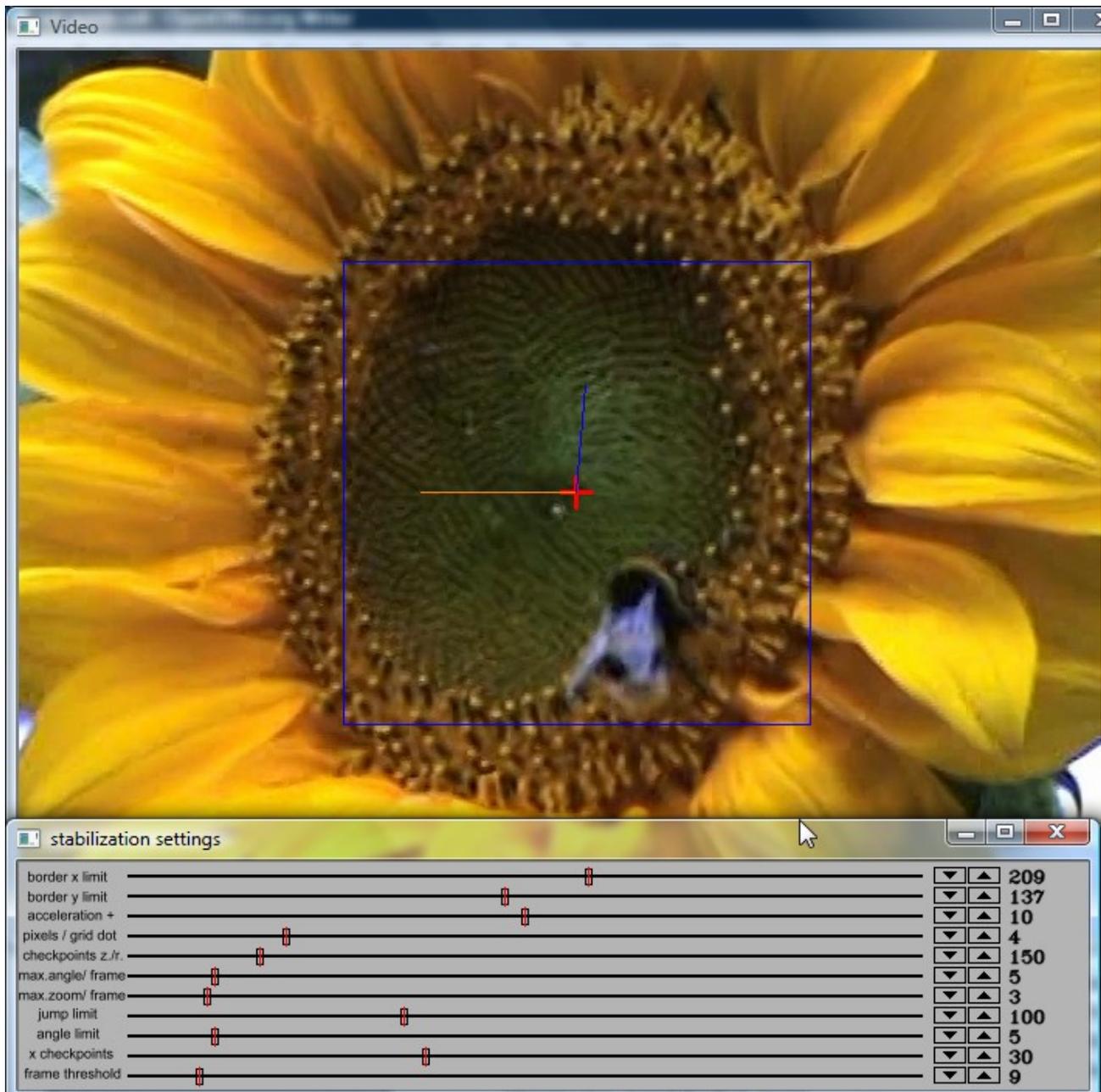


## Stabilize Guide

the Stabilizer serves to compensate camera shake. Available options are zoom and rotation detection. For border filling you can choose between **black**, **white** and previous frames (= **mirrored**). In addition you can select **fixed zoom** or **no clipping** to either completely remove the borders or to not remove them at all. Latter is especially interesting if you want to see all of the frame all of the time. It will make the dimensions of the video bigger.



If you know that no rotation occurs while zooming or if the rotation detection fails for some reason while zooming (e.g. too great deviations between background and foreground movements or insufficient reference points) you can set the parameters **max. angle/ frame** and **max. zoom/ frame** to zero. At the same time this will make processing even faster.

The border limits (**border x limit** & **border y limit**; shown as a blue resp. red rectangle) define

the detection area for the reference (represented by the frame itself) area which is static and centered, thus they define the area in which the center of the reference area (the frame) may move from frame to frame. If you want to search "outside" of the frame as well tick **invert border limits**. However if an detection occurs outside of the frame this would mean a huge jump (more than half the frame dimension) from frame to frame. So most likely you will not tick this option. Same applies to the Centertracker mode (CT) as the object is only searched for in the visible frame anyway. The option is more or less a relict of some (unpublished) predecessor versions but in some rare cases it may come in handy, so I left it there.

You can increase/ decrease detection precision in a similar way to template mode 2 (see template mode guide) by adjusting the settings **pixels/ grid dot**, **checkpoints z./r.** and **x checkpoints**. The last two parameters are relevant for zoom and rotation detection and define the number of checkpoints for image detection. **x checkpoints** defines the number of areas while **checkpoints z./r.** the number of checkpoints in those areas. The default settings will usually suffice. However you may find it necessary to increase the number of checkpoints or the grid dots or the opposite may also be possible so that lower values will be good enough to do the job which would also increase processing speed further more.

In some special cases like when you have a video where you filmed through a fence or recurring elements occur in the frame it is probably necessary to tick the option '**precision mode**' in the starting screen. This mode is rather slow though and should only be used if there occur (too many) jumps in the stabilized video. Tests have shown that lower values for the number of checkpoints yield the same or even better results as in the standard mode. So you may fetch back some time here.

Of course, 100% correct stabilization will most likely not be possible in every case. Rotation and zoom detection is not based on motion vectors but on mere image detection. So there will be a difference in the obtained results from results of other stabilizer software.

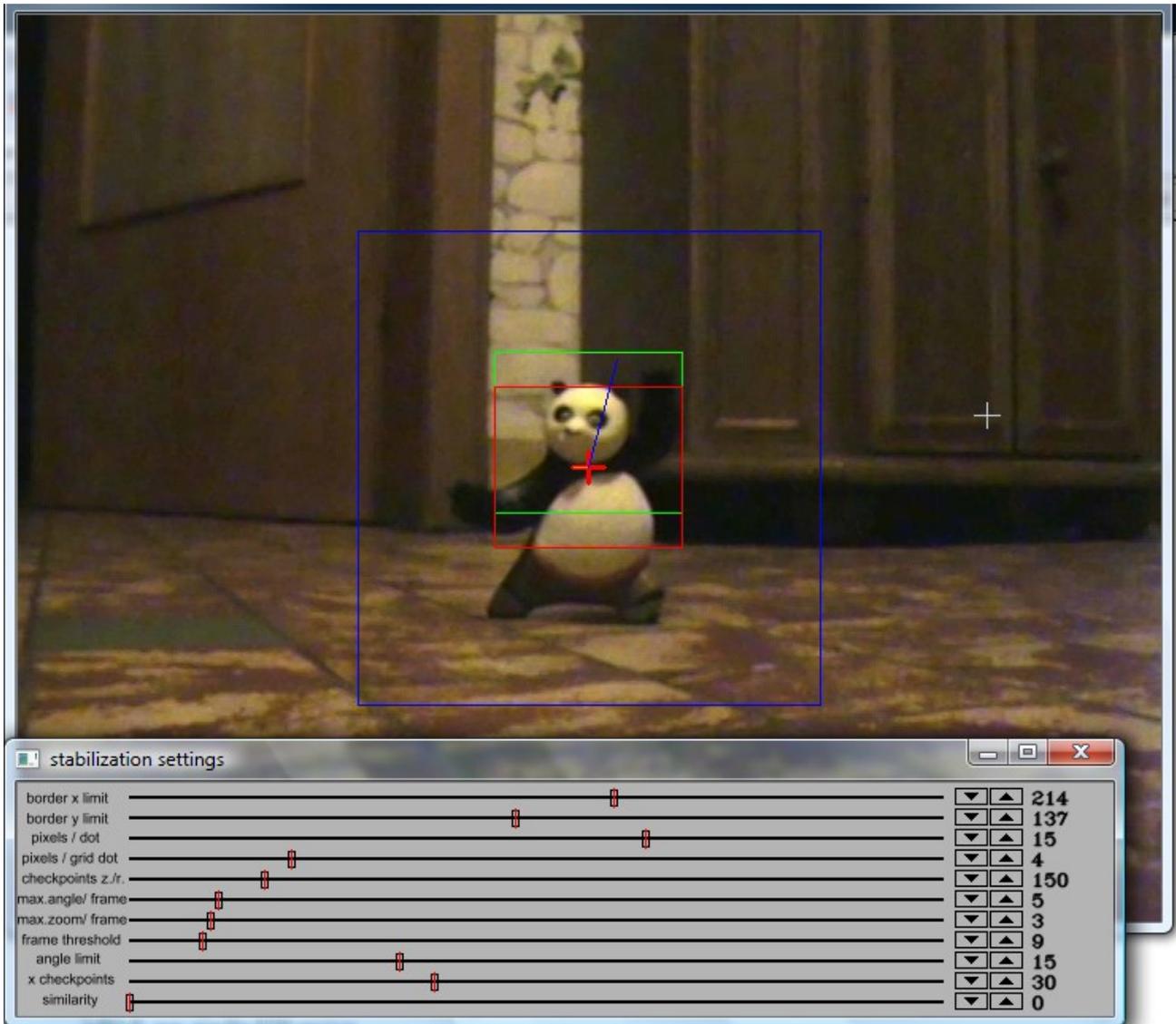
The parameters **max. angle/ frame** and **max. zoom/ frame** are self-explanatory: if there is a fast rotation you will adjust the **max. angle/ frame** parameter to a higher value and in case of a fast zoom you will do the same for the **max. zoom/ frame** setting. You do not need to worry about abrupt zoom halts as they are automatically detected by the program (as long as the parameter is not set to zero).

The jump and angle limits (**jump limit**, **angle limit**; orange line, blue tilted line) tell the program how many pixels the frame is allowed to move to the side (panning) and up to which angle it may rotate, i.o.w. how large the borders will be. If those limits are reached detection will return to the middle of the screen and to an rotation angle of zero degrees. However, if the jumps from frame to frame are too large larger borders may be unavoidable. The jumps should not add up to the jump limit within the chosen number of frames (parameter **frame threshold**) as this is the smallest threshold for the motion interpolation. If they do the borders will be larger than the jump limit. By contrast you may also want to avoid zigzagging and therefore allow a larger **frame threshold** (default is 9). If there are not too many large jumps in the original video the number of large borders will also be low.

## Centertracker mode (CT)

if you click **CT** on the stabilize button you can apply centered object tracking as in the template tracking mode. However the stabilization algorithms are used for the detection. Hence zoom and rotation are not connected to the template itself but to the whole frame and in the final result the

frames will be rotation corrected. Still you will first need to select a template area as it is used for centering. After that you will get to the settings screen which will look a bit confusing if you use the software for the first time. Here's the explanation of what you see there:



*green rectangle*: your template

*red rectangle*: facilitates choosing the border limits (*blue rectangle*) as the latter relates to the center of the frame, i.e. not to the center of the template (although that will be the case during processing).

As you can see there's no jump limit (we are centering, not stabilizing). But there's an **angle limit** which is represented by the tilted blue line. Centertracker can detect rotation up to 45°. The parameter **frame threshold** also has no meaning here (it stays inactive). But you will see the parameters **pixels/ dot** and **similarity** which you know from the template tracking mode and which are applied likewise.

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As Centertracker was originally designed to be used in combination with VirtualDub and AviSynth all results should be saved with VirtualDub. In case of zoom and rotation detection a video is

already produced by Centertracker. Optionally you can save audio, too by clicking the loud speaker symbol. This way you obtain a finished video. For saving rotation videos (or the processed images) there are two methods available. Method 1 is default, method 2 is applied if you tick **use method 2 to save avi**. Depending on which codecs you have installed on your system and whether you use DivX or Xvid (or other) for video compression you will need to figure out which method actually works. If you use Xvid it is important that you use at least version 1.3.2 because otherwise Centertracker will crash at the end (without influencing the result though). Be careful if you choose no compression at all (you will be asked to select compression type from a menu) because this may lead to very large video files as you can imagine. An example AVI video with a duration of 8 seconds and 480 x 384 pixels produced a 112 MB file while compressed with Xvid it was less than 1 MB.