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| **Parameter** | **Units** | **Description** | **Search Range (default)** |
| **Threshold / other parameters** | | | |
| filter\_gauss | Logical (0 or 1) | Use a gaussian filter for OMS if 1, use a disk filter if 0. | Leave it at 0. This is more realistic for IRIS implementation. |
| OS\_thres\_frac | Contrast (0 – 1) | Threshold contrast for both OS features following the edge-detection filter. Higher threshold means fewer spikes. | 0.1 – 0.5 (0.5) |
| contrast\_thres\_frac | Contrast (0 – 1) | Threshold contrast for local contrast feature. Higher threshold means fewer spikes. | 0.1 – 0.5 (0.1) |
| DVS\_contrast\_thres\_frac | Contrast (0 – 1) | Threshold contrast for DVS feature. Higher threshold means fewer spikes. | 0.1 – 0.5 (0.1) |
| LD\_contrast\_thres\_frac | Contrast (0 – 1) | Threshold contrast for first (bipolar cell mimic) step in LD feature where positive and negative contrasts are extracted. | 0.1 – 0.5 (0.1) |
| OMS\_threshold\_frac | Contrast (0 – 1) | Threshold contrast for first (bipolar cell mimic) step in OMS feature where absolute contrast is extracted. | 0.1 – 0.5 (0.1) |
| loom\_threshold\_frac | Fraction (0 – 1) | Fraction of the receptive field center (for LD feature) that has to be occupied by negative temporal contrast to elicit a spike. | 0.1 – 0.9 (0.1) |
| motion\_surround\_weight | Unitless ratio | Weighting of the suppresive RF surround relative to the center for OMS computation. A higher value will result in fewer OMS feature spikes. | 0.1 – 2 (1) |
| **Size parameters** | | | |
| pixel\_resolution\_static | Degrees of visual angle | Pixel size for static features | .05 – 2 (0.5) |
| pixel\_resolution\_motion | Degrees of visual angle | Pixel size for initial step of motion features. For DVS this determines the size of the feature image returned. For OMS and LD, it is downsampled again by the “feature\_spacing\_motion” parameter. | .05 – 2 (0.2) |
| gauss\_filter\_size\_static | Degrees of visual angle | s.d. of spatial gaussian filter used to make the blurred version of the image subtracted from each frame for all 3 static features. | .1 – 10 (1) – should be larger than pixel\_resolution\_static |
| motion\_feature\_RF\_center | Degrees of visual angle | RF center size for OMS and LD features. | .5 – 20 (1) – should be larger than pixel\_resolution\_motion |
| motion\_feature\_RF\_surround | Degrees of visual angle | RF surround suze for OMS feature. | 2 – 40 (5) – should be substantially larger than motion\_feature\_RF\_center |
| feature\_spacing\_motion | Degrees of visual angle | Spacing between RF centers of the OMS and LD feature units. | pixel\_resolution\_motion – 10 \* pixel\_resolution\_motion |