



## Parameters

### # General retina

```
retina_width      = 400 * UM_TO_M
retina_height     = 400 * UM_TO_M
retina_grid_size  = 1 * UM_TO_M
retina_timestep   = 10 * MS_TO_S
```

### # Cone Layer

```
cone_distance     = 10 * UM_TO_M
cone_density      = 100.0
cone_input_size   = 10 * UM_TO_M
```

### # Horizontal Layer

```
horizontal_input_strength = 0.25
horizontal_decay_rate     = 0.01
horizontal_diffusion_radius = 1 * UM_TO_M
```

### # Bipolar layer

```
bipolar_distance     = 10 * UM_TO_M
bipolar_density      = 100.0
bipolar_input_radius = 10 * UM_TO_M
bipolar_output_radius = 10 * UM_TO_M
```

### # Build the starburst layer

```
starburst_distance = 50 * UM_TO_M
starburst_density  = 1000.0
average_wirelength = 150 * UM_TO_M
step_size         = 15 * UM_TO_M
decay_rate        = [0.1, 0.2, 0.3]
input_strength     = 0.5
diffusion          = ("Flat", [30 * UM_TO_M / retina_grid_size])
'print_stop'
```

### # Put parameters into lists

```
retina_parameters = [retina_width, retina_height, retina_grid_size]
cone_parameters   = [cone_distance, cone_density, cone_input_size]
horizontal_parameters = [horizontal_input_strength, horizontal_decay_rate, horizontal_diffusion_radius]
bipolar_parameters = [bipolar_distance, bipolar_density, bipolar_input_radius, bipolar_output_radius]
starburst_parameters = [starburst_distance, starburst_density, average_wirelength, step_size, decay_rate, input_strength, diffusion]
runtime_starburst_parameters = [input_strength, decay_rate]
```

### # Set some default values in starburst parameters for the runtime

```
for parameter in runtime_starburst_parameters:
    if isinstance(parameter, (list, np.ndarray)):
        starburst_parameters.append(parameter[0])
    else:
        starburst_parameters.append(parameter)
```

'print\_start'

### # Bar paramters

```
framerate      = 60.0
movie_width    = 400
```

```
movie_height      = 400
bar_width         = 50.0 # Pixels (width = size in direction of movement)
bar_height        = 400
bar_speed         = 2000.0
bar_movement_distance = 400.0
pixel_size_in_rgu = 1.0 # rgu
```