

How to use these scripts:

1. **Attach the RealGaze - Looker script to any characters in your scene.** These must be person type atoms.
 - a. This script will have a key of 0 by default. If you want this Looker to look at specific characters, once you've added the Target scripts to those characters, use the slider to pick the matching key and then press add key.
 - b. Adjust the sliders for the player camera settings for relative frequency, mirror preference, min. and max. distance, pupil dilation, and arousal factor.

Advanced:

- i. *Set the Looker key and/or add keys to the key list to decide what specific Targets this Looker script looks at. Key rules defined below.*
- ii. *Open the advanced tab and adjust sliders to achieve the exact performance you want from the plugin. Slider functions defined further down.*

2. **Attach the RealGaze - Target script to any atoms you want,** even characters with the Looker script.
 - a. This Target script will soon be a viable look target for all Looker scripts in the scene. *If this Target script is on the same character as a Looker script and you want the character to look at it, set its key to 0.*
 - b. Adjust the sliders for relative frequency, mirror preference, min. and max. distance, pupil dilation, and arousal factor.

Advanced:

- i. *Set the Target key to limit what Lookers look at this Target. Reference the key rules below to determine how you may want to set these.*

3. **Attach the RealGaze Mirror Excluder script to any reflective objects you want to exclude,** this includes anything in the reflective category.
 - a. This "script" has no settings to change. Once it's added to a reflective object, all looker scripts in the scene will ignore it and act as if it isn't an actual mirror.

Key rules:

Changing keys lets you limit Looker/Target interactions according to the following rules. *This is a more advanced feature of the plugin.*

1. Looker scripts and Target scripts with equal keys are **always** linked and a Looker will look at any and all Targets with an equal key.
2. Looker scripts with a key of 0 will look at any Target *that isn't on the same character* with a key value equal to or greater than 0.
3. Target scripts with a key of 0 will be looked at by any Looker with a key value greater than or equal to zero.

Solutions to common problems:

The character's pupils are scaling to the wrong values. What's going on?

Attempting to change the pupil dilation morph after activating this plugin won't work because this plugin saves the current pupil dilation morph value when it first loads and uses that for its base value. **In order to fix this, disable the plugin, set the pupil dilation morph to what you want, then reload it.** I'm working on trying to figure out a way to make the plugin realize the player is changing the value, but until then this is the solution.

I've set the look away preference to 0, but the character still looks away sometimes.

This is likely because the target the plugin selected is outside its valid range. If you really want to avoid the character looking away, uncheck the "Look away when outside range" box in advanced. This could also be happening because the total of all relative chance for all targets is 0.

I set a key value in my Target script, but then the value changed. Why?

Just change it back to what it was prior to the value changing automatically. That change only happens once per Target script and typically happens in less than three seconds, then never happens again. This is the assignment of the character key for simple setup.

The character won't turn to look at something that the character could clearly turn and look at.

Increase the "Look range" value in advanced. I've set it to a very generous 200 degrees by default, but the maximum is 360 degrees. Make sure nothing is somehow lowering the value.

The character either twists their head so fast it would snap off, or they're bending at weird angles.

This unfortunately is a problem that has been causing me grief forever. If this is happening still, I apologize. I'm working on trying to find a reliable fix for this issue, but being unfamiliar with Unity and VaM's architecture, trying to figure out solutions to this issue is difficult.

What the Custom UI elements do:

RealGaze - Target



(This is coming first for a reason)

Green: *Target script key functions*

Looker key(-10 to 10) - Sets what this Target's key is when a Looker script checks it.

Receiver choice - Selects what joint/object this Target script is attached to, options vary based on what atom type it's connected to.

Use given key - If this Target script is on a Person atom, and there's at least one Looker script in the scene, this Target script has a saved "given key" that this button will set its current key to. *This button doesn't show up on Target scripts not on Person atoms.*

Red: *Target settings sliders*

Relative frequency(0 to 5) - Sets the relative frequency with which this Target will be picked by a Looker script.

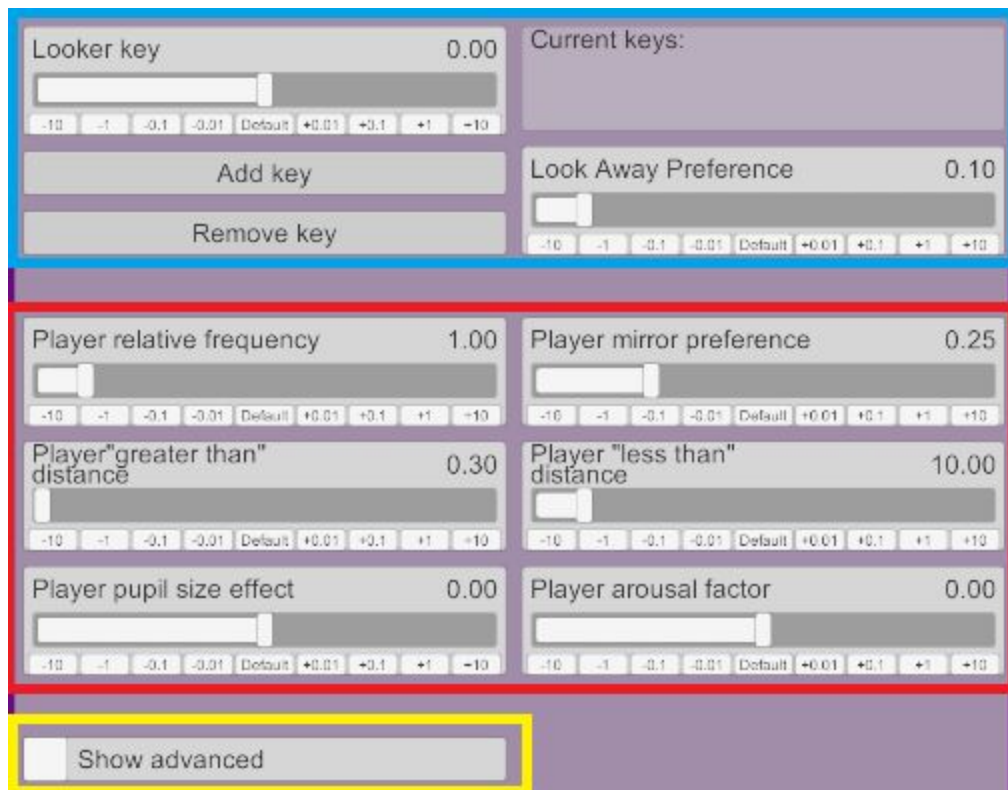
Mirror preference(0 to 1) - Sets the preference for a Looker to use a mirror to look at this Target. *If this is set to 0 a character will **never** use a mirror, if it's set to 1 a character will **try to only** use mirrors.*

"Greater than" distance(0 to 100) - The minimum distance from the Looker script this Target must be to be considered valid and "look-at-able."

"Less than" distance(0 to 100) - The maximum distance from the Looker this Target must be to be considered valid and "look-at-able." *If you set this value less than the "Greater than" distance, the Looker will treat the area between these two distances as a "dead zone" of sorts.*

Pupil size effect(-1 to 1) - How much to change the pupil scale by when looking at this Target. Does not exceed eye dilation morph limits.

Arousal factor(-4 to 4) - How arousing this Target is.

RealGaze - Looker_(Basic half)

Blue: *Looker script key functions*

Key value(-10 to 10) - Chooses a key. If **Current keys** displays no keys, this is the Looker key the script uses. Push **Add key** to add the currently chosen key, or **Remove key** to remove it. *This allows you to set the Lookers and Targets up in a more advanced way than the plugin sets up by default.*

Look Away Preference(0 to 1) - Selects how much this character chooses to look away, where 0 means it'll never look away if there are valid targets to look at, and 1 means it'll always look away. This is a percentage unlike relative frequency, where 0.05 means it'll look away roughly 5% of the time, 0.5 = 50% roughly, etc.

Red: *Player camera "Target" settings sliders*

This entire section is 1-to-1 with the red section of the Target script UI. This section of the Custom UI treats the Player Camera as if it had a Target script attached to it.

(Now you see why the Target script was first!)

Yellow: *Advanced setting fold*

(Admittedly, the yellow rectangle is a little useless here since there's only one thing.)

Show advanced - Self explanatory; shows the advanced settings for the plugin.

RealGaze - Looker_(Advanced half)

The screenshot shows the 'RealGaze - Looker' configuration window, specifically the 'Advanced half'. The window is organized into a grid of control panels, each with a colored border. The top section, outlined in yellow, contains sliders for 'Min Saccade Range' (0.01), 'Max Saccade Range' (0.03), 'Min Look Away Range' (0.40), 'Max Look Away Range' (1.00), 'Look Away Sideways Offset' (0.00), and 'Look Away Forward Offset' (1.50). The second section, outlined in orange, includes 'Saccade Time Length' (0.60), 'Body Move Time Length' (0.60), 'Min Time Between Targets' (2.50), and 'Max Time Between Targets' (5.00). The third section, outlined in red, features 'Look range' (200.00) and 'Min. req. angle for head movement' (1.00). The fourth section, outlined in green, contains 'Min time between blinks' (2.40), 'Max time between blinks' (8.00), and 'Min. req. angle for forced blink' (30.00). The bottom section, outlined in blue, has checkboxes for 'Do pupil dilation' and 'Do saccades'. To the right of the green section, there are additional controls: a 'Body motion' slider, a 'Disable none' button, and a checked checkbox for 'Look away when target invalid'.

Yellow: *EyeTarget positioning sliders*

Min./Max. Saccade Range(0 to 0.1) - A pair of two radii measured in meters for saccades. This determines how much the eyes move when doing saccades. Smaller numbers mean saccades are more subtle.

Min./Max. Look Away Range(0.4 to 2) - A pair of two radii measured in meters for looking away from targets. The eye target starts from the look away "center point" and then picks a random value that is within the smaller and larger radius away from that center point.

Look Away Sideways/Forwards Offset(-2 to 2) - X and Z offset applied to the look away "center point". If these are both zero, this means the center point is on the

character's head and the character can look around themselves in a full sphere. Moving it forward/backwards using the forwards offset adjusts how far forwards/backwards their gaze tends to go, and moving it side to side adjusts which direction they look off in more often.

Orange: *Movement time sliders*

Saccade Time Length(0.5 to 0.8) - Duration, in seconds, of saccades.

Body Move Time Length(0.5 to 2) - Duration, in seconds, of body movement.

Min./Max Time Between Targets(0.8 to 10) - Minimum and maximum time, in seconds, after which the character will choose a new target. The amount of time is randomly selected between these two numbers. *Sometimes the Looker script will look at the same Target for longer than the defined maximum Target time, this is because Targets and/or whether or not to look away are randomly selected.*

Red: *Field of view and focus area sliders*

Look Range(50 to 360) - The character's "field of view" in degrees.

Min. req. Angle for Head Movement(0 to 5) - How many degrees away from looking directly at the object the head can be before needing to move.

Green: *Blinking settings sliders*

Min/Max time between blinks - Minimum and maximum time in seconds that a character will wait between blinks.

Min. req. angle for forced blink - How many angles the current target needs to be from the current head forward direction for the script to try to force a blink, which matches real life behaviour.

Blue: *Miscellaneous settings*

Body motion - Whether or not/how the body should move. Options are "Disable none", "Disable body", and "Disable all". Disable body just disables the torso and pelvis movement, while disable all disables the torso, pelvis, and head.

Do pupil dilation - Disables or enables pupil dilation effects.

Do saccades - Disables or enables saccades.

Look away when target too close/far - If a target turns out to be invalid, the Looker will look away if this is checked. Otherwise, it starts the random selection process again using a different value to ensure it gets a valid Target.

Do blinking - Disables or enables blinking.