light_detect Documentation

Release 1.0.0

Owen Bulka

Jul 25, 2020

Contents:

Command line tool to find lights in an image

`detect.`**`main`**`( )`
> Detect the lights in an image.

`detect.`**`parse_args`**`( )`
> Parse the arguments.

> **Returns:**
>> argparse.Namespace: The command line arguments.

Contains object detection classes.

class `object_detect.detectors.`**`LightDetector`** (*image_path=None*, *image=None*, *blur_length=5*, *threshold=210*)
> Object capable of finding light sources in an image.

> **property `gaussian_blur_length`**
>> int: The edge length of the gaussion blur kernel.

> **property `light_centers`**
>> list(tuple(int, int)): Contains the center of each light.

> **property `light_circles`**
>> Decorate the property method with the ability to automatically set the corresponding instance variable of the class.

> **property `light_contours`**
>> Decorate the property method with the ability to automatically set the corresponding instance variable of the class.

> **`show_lights`** (*colour=0, 0, 255*, *thickness=3*)
>> Display the lights.

>> **Keyword Args:**
>>> **colour (tuple(uint8)):**
>>>> The BGR colour to mark the lights with.

>>> **thickness (int):**
>>>> The line thickness to use in marking the lights.

property **threshold**
>   np.uint8: The value to threshold the image on.

class `object_detect.detectors.`**`ObjectDetector`** (*image_path=None*, *image=None*)
>   Base class for object detectors.

>   property **gray_scale_img**
>   >   np.array((:,:), np.uint8): The grayscale version of the original image.

>   **static** **show_image** (*image*, *window_title='Image'*)
>   >   Display an image.

>   >   **Args:**
>   >   >   image (np.array((:,:,…), np.uint8)): The image to show.

>   >   **Keyword Args:**
>   >   >   window_title (str): The title to display on the window.

>   **show_working_image** ( )
>   >   Display the current working image.

Useful object representation.

class `object_detect.objects.`**`Circle`** (*center*, *radius*)
>   Represent a circle.

>   **classmethod** **as_integers** (*center*, *radius*)
>   >   Initialize the circle using rounded, integer values.

>   >   **Args:**
>   >   >   **center (tuple(float, float)):**
>   >   >   >   The center position of the circle.
>   >   >   radius (float): The radius of the circle.

>   >   **Returns:**
>   >   >   instance: The class instance intialized with integers.

>   property **center**
>   >   tuple: The center position of the circle.

>   property **radius**
>   >   float or int: The radius of the circle.

Utility Functions.

`object_detect.utils.`**`autoset_property`** (*property_method*)
>   Wraps a class property to automatically set the corresponding instance variable if it evaluates False. This requires the instance variable name be an underscore followed by the property method name, and a corresponding setter method be implemented and named _set followed by the instance variable name. This allows automatic caching of potentially slow to set variables.

>   **Args:**

>   >   **property_method (method):**
>   >   >   The class property that is to be decorated.

- *Index*
- *Module Index*

• *Search Page*

d

o

A

as_integers() (object_detect.objects.Circle class
method), 2
autoset_property() (in module object_detect.u-
tils), 2

C

center() (object_detect.objects.Circle property), 2
Circle (class in object_detect.objects), 2

D

detect
module, 1

G

gaussian_blur_length() (object_detect.detectors.-
LightDetector property), 1
gray_scale_img() (object_detect.detectors.Object-
Detector property), 2

L

light_centers() (object_detect.detectors.LightDe-
tector property), 1
light_circles() (object_detect.detectors.LightDe-
tector property), 1
light_contours() (object_detect.detectors.LightDe-
tector property), 1
LightDetector (class in object_detect.detectors), 1

M

main() (in module detect), 1
module
detect, 1
object_detect.detectors, 1
object_detect.objects, 2

object_detect.utils, 2

O

object_detect.detectors
module, 1
object_detect.objects
module, 2
object_detect.utils
module, 2
ObjectDetector (class in object_detect.detectors), 2

P

parse_args() (in module detect), 1

R

radius() (object_detect.objects.Circle property), 2

S

show_image() (object_detect.detectors.ObjectDe-
tector static method), 2
show_lights() (object_detect.detectors.LightDe-
tector method), 1
show_working_image() (object_detect.detec-
tors.ObjectDetector method), 2

T

threshold() (object_detect.detectors.LightDetector
property), 2