Instructions for controlling LIFX light bulbs from MATLAB

Here we provide some instructions on controlling LIFX light bulbs from MATLAB.

1. Matlab function *lifx\_udp.m*

This is the main function that allows you to control the light bulbs.

* 1. Download *lifx\_udp.m*

Put it under a directory that is in your MATLAB paths.

>> myFavouriteNumber = 8;

Note that you can also copy and paste from the Matlab editor or command line. That will preserve the Matlab formatting, including colour for key words etc.:

>> myDigits = '12';

* 1. Usage

The light bulb can be controlled through the following command:

>> packet = lifx\_udp(h, s, b, k);

The input arguments: *h* specifies a hue value ranging from 1-360, *s* specifies a saturation value ranging from 0-1, *b* specifies a brightness value ranging from 0-1, and *k* specifies a temperature value from 2500 (cool) to 9000 (warm).

Set *b* to a value greater than 0 to switch on the light and a value of 0 to switch off.

Set *s* to 1 for producing a pure monochromatic light or 0 for a white light.

For more usage, please refer to the documentation of the function.

Some common usages can be found in the script *LightColours.m*, such as using the following command to produce a pure red light:

>> packet = lifx\_udp(360, 1, 1, 9000);

1. The neon fruit illusion

Run the script *NeonFruitIllusion.m* to generate lighting conditions that can be used to produce the neon fruit illusion.

The light starts with a pure green light with a small amount of long wavelength light gradually slips in.

1. Gradual changes

Run the script *VaryingWhiteLight.m* to gradually vary a while light through the temperature parameter *k*, which is too subtle to easily notice its influence on objects that reflect the light.