EdoardoLenzi9 / **BRDF_Goniochromism**

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EdoardoLenzi9 update r…   Latest commit `79ac519` 1 minute ago   ⟲ **History**

⣿ **1** contributor

99 lines (68 sloc)   3.06 KB   Raw   Blame   ✎   🗑

BRDF Goniochromism (Iridescence)

Get Started

Download the required `node_modules` for front-end and back-end

```
git clone https://github.com/EdoardoLenzi9
/BRDF_Goniochromism.git
cd BRDF_Goniochromism
# git checkout dev
npm install
```

Start the web server (http://localhost:8080)

```
node index.js
# see http://localhost:8080
```

Download the required dependencies for Python3

```
python3 -m pip install -r requirements.txt
```

Run the python script

```
python3 image_processing.py -h
```

You shoud see something like this:

```
usage: image_processing.py [-h] [--diff N N]

                        Welcome to Image Processing
Script :)


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optional arguments:
  -h, --help  show this help message and exit
  --diff N N  Compares 2 images

Source: https://github.com/EdoardoLenzi9
/BRDF_Goniochromism
```
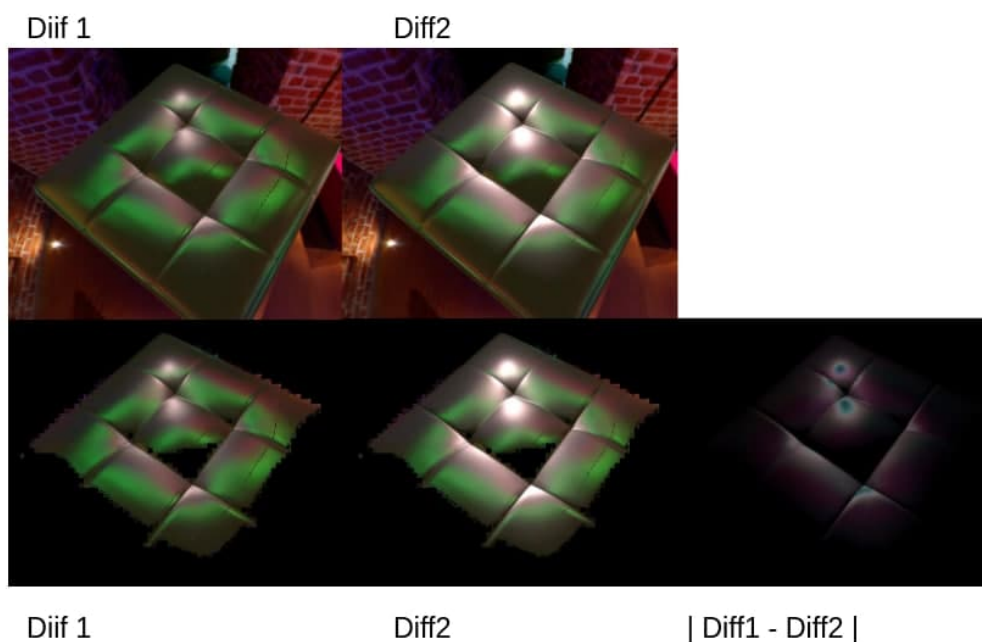
Compare two images

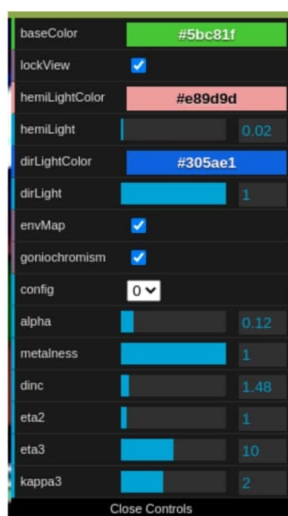```
python3 image_processing.py --diff assets/images/test0.jpg
assets/images/test1.jpg
```

this should generate 3 images:

1. /assets/images/diff_test0.py
2. /assets/images/diff_test1.py
3. /assets/images/diff.py

Diif 1         Diff2

Diif 1         Diff2         | Diff1 - Diff2 |

# UI Tour

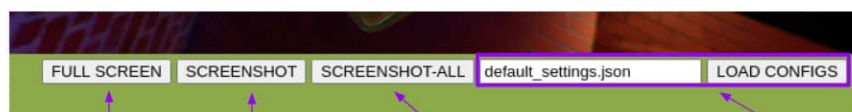| | | |
|---|---|---|
| baseColor | #5bc81f | Mesh BaseColor |
| lockView | ✓ | LockView ( lock OrbitControl ) |
| hemiLightColor | #e89d9d | HemiLight color ( THREE.HemisphereLight ) |
| hemiLight | 0.02 | HemiLight intensity ( ranges in [0,1] ) |
| dirLightColor | #305ae1 | PointLight color |
| dirLight | 1 | PointLight intensity ( ranges in [0,1] ) |
| envMap | ✓ | Enable/Disable EnvironmentMap |
| goniochromism | ✓ | Enable/Disable Goiniochromism (switch to our BRDF/paper BRDF) |
| config | 0 ▾ | Load a pre-defined configuration (stored in assets/settings/default_settings.json) |
| alpha | 0.12 | Roughness |
| metalness | 1 | Metalness |
| dinc | 1.48 | Paper parameters (dinc, eta2, eta3, kappa3) |
| eta2 | 1 | |
| eta3 | 10 | |
| kappa3 | 2 | |
| Close Controls | | |

Refraction index of medium 2

Considered number of interreflections in the thin film layer

Refraction index of medium 3

FULL SCREEN   SCREENSHOT   SCREENSHOT-ALL   default_settings.json   LOAD CONFIGS

Full screen the iframe with the scene

Take a screenshot of the current scene

For each configuration (assets/settings/default_settings.json) take a screenshot of the correspondent scene and save it in the file system (assets/images/screenshots)

You can write your own config file and load it

# Disclamer

- The material contained in these project is restricted to students/professors of the 3D Interactive course of the Master of Computer Science at the University of Udine.

- It prohibited any use other than that inherent to the course, and in particular is expressly prohibited its use for any commercial purposes and/or for profit.

# Credits

- See also [A Practical Extension to Microfacet Theory for the Modeling of Varying Iridescence](#)
- [Chair](#)

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