Errata Corrige

(new) 1.2 Laplace of Gaussians filters

The sample images used in the solution were wrong. Also, redefined the text of the first question in the report of section 1.2 "Separability and computational efficiency".

1-D Box Filter & 1-D Gaussian Filter & Laplacian Filter

Redefined the text of the excercise to be clearer when describing the final size of the filter which should be the interval $\left[-\kappa,\kappa\right]$ where $2\kappa =$ `filter_size`, i.e. the final size of the filter should always be `filter_size`.

Missing Answer box

Added missing answer box in section 1.1.4, with the question "Why is that the median filter looks different"?

2D Guassian Filter

The actual size of the filter that you should use is:
$$
\verb|filter_size| = \lceil 6\sigma \rceil
$$
rounded up to the nearest odd integer, such that it contains around 99.7% of the total distribution.

2.2 Stage 3

The `direction_scan` function had a wrong docstring, specifying the wrong angles. The correct docstring is:

```
def direction_scan(
    img: np.ndarray, theta: float, i:int, j:int
    ) -> List[float]:
    """
    This function quantizes the gradient directions into
    four discrete directions:
        - horizontal: theta in [0, 22.5) or [157.5, 180]
        - right diagonal: theta in [22.5, 67.5)
        - vertical: theta in [67.5, 112.5)
        - left diagonal: theta in [112.5, 157.5)
    then it returns the pixel values of the two pixels in
    the corresponding direction.

    Returns:
        neighbors List[float]: pixel values of the two neighbors
            in the corresponding direction
    """
```

GDown Assets

As a courtesy we added a gdown command that downloads all the assets needed for the homework, simplifying the usage of tools like a local jupyter server or Colab.

Minor

Title and points

Some of the subsections titles and points were misaligned with what was described in the index.

Section 1.1.4, Section 1.1.1

Changed the values of sigma and filter_size when testing the functions.

Typos

- Section 2.2 Stage 3 the Z array was wrongfully multiplied by 2 in the visualization plot.
- In various sections the argument σ was wrongfully typed as `int` rather than `float`.
- Changed the default value of some function arguments, `filter_size`.