

# Fast Image Dehazing Using Dark Channel Prior For Python 3.6+

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An implementation of the algorithm described in *Single Image Haze Removal Using Dark Channel Prior* [He et al. 09] ([page](#)), with the modifications proposed in *Guided Filtering* [He et al. 10] for faster transmission refinement.

## Running

In order to run the program one needs:

- [Python 3.6+](#) installed;
- [SciPy](#) installed;
- [NumPy](#) installed.
- [scikit-image](#) installed.
- [numba](#) installed.

Having those requirements, one should be able to run the program with the following command line (considering one is in the `src` folder):

```
$ python main.py -i ../images/cones.jpg -o ../results/cones_res.jpg
```

This programs calls the `main` module of the program to receive the arguments. The first argument `-i` is the path to the input image that will be dehazed. While the `-o` argument is the path to the output image, that is, the dehazed version of the input image. These are the only two required arguments.

For optional arguments, one can type:

```
$ python main.py -h
```

This will display the set of arguments available.

## Benchmarks and Results

A set of benchmark images can be found under the folder `images`. Most were taken from the main base paper page, but some were taken from the [page](#) of *Dehazing Using Color-Lines* [Fattal 14].

Results of applying the program to some of the benchmark images can be found under the folder `results`.

## References

There is a document under *references* listing all the papers used in the development of this project. However, the two main references for this project were:

- *Single Image Haze Removal Using Dark Channel Prior* [He et al. 09], CVRP;
- *Guided Filtering* [He et al. 10], ECCV.

## About

This project was developed as a Final Project for the "INF01050 - Computational Photography" class, 2016, at UFRGS.