
unetseg Documentation

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Dymaxion Labs

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U-Net semantic segmentation for satellite imagery

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*This digital tool is part of the catalog of tools of the **Inter-American Development Bank**. You can learn more about the IDB initiative at code.iadb.org*

2.1 :information_source: Description

A set of classes and CLI tools for training a semantic segmentation model based on the U-Net architecture, using [Tensorflow](#) and [Keras](#).

This implementation is tuned specifically for satellite imagery and other geospatial raster data.

2.2 :handshake: Contributing

Bug reports and pull requests are welcome on GitHub at the [issues page](#). This project is intended to be a safe, welcoming space for collaboration, and contributors are expected to adhere to the [Contributor Covenant](#) code of conduct.

2.3 :man_technologist: Authors

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2.6 Contributors

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2.7 Changelog

All notable changes to this project will be documented in this file.

The format is based on [Keep a Changelog](#), and this project adheres to [Semantic Versioning](#).

2.7.1 [0.2.1] - 2022-02-02

Changed

- `fix(evaluate)`: Change masks to extent

2.7.2 [0.2.0] - 2022-01-13

Added

- New `masks_path` training config attribute for specifying a custom directory for masks

Changed

- Upgrade to Tensorflow 2+
- Support for `satproc` $\geq 0.1.8$
- Depend on Python ≥ 3.7

2.7.3 [0.1.10] - 2022-01-11

Changed

- Force requirement to Python < 3.8 (caused by dependency to TF 1.15)
- Add missing dependencies
- Update docstrings

2.7.4 [0.1.5] - 2021-08-18

Added

- New model `Unet++` and setting `model_architecture` on training config object

2.8 unetseg

2.8.1 unetseg package

Subpackages

`unetseg.console` namespace

Submodules

`unetseg.console.predict` module

`unetseg.console.train` module

Submodules

`unetseg.evaluate` module

`unetseg.postprocess` module

`unetseg.predict` module

`unetseg.skeleton` module

This is a skeleton file that can serve as a starting point for a Python console script. To run this script uncomment the following lines in the `[options.entry_points]` section in `setup.cfg`:

```
console_scripts =
    fibonacci = unetseg.skeleton:run
```

Then run `pip install .` (or `pip install -e .` for editable mode) which will install the command `fibonacci` inside your current environment.

Besides console scripts, the header (i.e. until `_logger...`) of this file can also be used as template for Python modules.

Note: This skeleton file can be safely removed if not needed!

References

- https://setuptools.readthedocs.io/en/latest/userguide/entry_point.html
- https://pip.pypa.io/en/stable/reference/pip_install

`unetseg.skeleton.fib(n)`

Fibonacci example function

Parameters *n* (*int*) – integer

Returns *n*-th Fibonacci number

Return type *int*

`unetseg.skeleton.main(args)`

Wrapper allowing `fib()` to be called with string arguments in a CLI fashion

Instead of returning the value from `fib()`, it prints the result to the `stdout` in a nicely formatted message.

Parameters `args` (`List[str]`) – command line parameters as list of strings (for example `["--verbose", "42"]`).

`unetseg.skeleton.parse_args(args)`

Parse command line parameters

Parameters `args` (`List[str]`) – command line parameters as list of strings (for example `["--help"]`).

Returns command line parameters namespace

Return type `argparse.Namespace`

`unetseg.skeleton.run()`

Calls `main()` passing the CLI arguments extracted from `sys.argv`

This function can be used as entry point to create console scripts with `setuptools`.

`unetseg.skeleton.setup_logging(loglevel)`

Setup basic logging

Parameters `loglevel` (`int`) – minimum loglevel for emitting messages

unetseg.train module

unetseg.utils module

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