

---

# **pyreaper Documentation**

***Release 0.0.10***

**Ryuichi YAMAMOTO**

**Aug 18, 2023**



---

## Contents

---

<b>1</b>	<b>Installation guide</b>	<b>3</b>
<b>2</b>	<b>API</b>	<b>5</b>
2.1	pyreaper.reaper . . . . .	5
<b>3</b>	<b>Indices and tables</b>	<b>7</b>
	<b>Python Module Index</b>	<b>9</b>
	<b>Index</b>	<b>11</b>



A python wrapper for REAPER (Robust Epoch And Pitch EstimatorR).

<https://github.com/r9y9/pyreaper>



# CHAPTER 1

---

## Installation guide

---

The latest release is available on pypi. You can install it by:

```
pip install pyreaper
```

Note that you have to install `numpy` to build C-extensions.

If you want the latest development version, assuming you have `cython` installed, run:

```
pip install git+https://github.com/r9y9/pyreaper
```

or:

```
git clone https://github.com/r9y9/pyreaper
cd pyreaper
git submodule update --init --recursive
python setup.py develop # or install
```

This should resolve the package dependencies and install `pyreaper` properly.





---

<code>pyreaper.reaper(x, fs[, minf0, maxf0, ...])</code>	REAPER (Robust Epoch And Pitch Estimator)
--	---

---

## 2.1 pyreaper.reaper

`pyreaper.reaper(x, fs, minf0=40.0, maxf0=500.0, do_high_pass=True, do_hilbert_transform=False, inter_pulse=0.01, frame_period=0.005, unvoiced_cost=0.9)`  
 REAPER (Robust Epoch And Pitch Estimator)

Perform REAPER analysis given an audio signal

### Parameters

**x** [np.ndarray, dtype=np.int16] Input audio signal

**fs** [int] Sampling frequency

**minf0** [float] Min f0. Default is 40.0.

**maxf0** [float] Max f0. Default is 500.0.

**do\_high\_pass** [Bool] Enable Rumble-removal highpass filter. Default is True.

**do\_hilbert\_transform** [Bool] Enable Hilbert transform that may reduce phase distortion. Default is False.

**inter\_pulse** [float] Regular inter-mark interval to use in UV pitchmark regions. Default is 0.01 (sec)

**frame\_period** [float] Frame period. Default is 0.005 (sec).

**unvoiced\_cost** [float] Set the cost for unvoiced segments. Default is 0.9, the higher the value the more f0 estimates in noise.

### Returns

**pm\_times** [np.ndarray, dtype=np.float32] Pitch mark time series in seconds

**pm** [np.ndarray, dtype=np.int32] Pitch mark. Value 1 and 0 means voiced frame and unvoiced frame, respectively.

**f0\_times** [np.ndarray, dtype=np.float32] F0 time series in seconds

**f0** [np.ndarray, dtype=np.float32] F0 contour

**corr** [np.ndarray, dtype=np.float32] Correlations

#### Raises

##### RuntimeError

- if EpochTracker Init failed
- if EpochTracker ComputeFeatures failed
- if EpochTracker TrackEpochs failed
- if EpochTracker ResampleAndReturnResults failed

#### Examples

```
>>> from scipy.io import wavfile
>>> import pysptk
>>> import pyreaper
>>> fs, x = wavfile.read(pysptk.util.example_audio_file())
>>> pm_times, pm, f0_times, f0, corr = pyreaper.reaper(x, fs)
```

## CHAPTER 3

---

### Indices and tables

---

- `genindex`
- `search`



**p**

pyreaper, ??



## P

`pyreaper` (*module*), 1

## R

`reaper()` (*in module pyreaper*), 5