



RPA With Python (Robotic Process Automation)



Uncle Engineer

ลุงวิศวกร สอนคำนวณ

Robotic Process Automation (RPA) คือโปรแกรมการทำงานที่เลียนแบบพฤติกรรมของมนุษย์ หรือทำงานทดแทนมนุษย์ (เปลี่ยนจาก “ฮัตโนมือ” เป็น “ฮัตโนมัต”)

RPA เหมาะสำหรับ

- งาน “รูทิน” ที่ทำซ้ำๆ เป็นประจำ
- งานที่มีลำดับขั้นตอนอย่างชัดเจน
- งานที่มีปริมาณมากๆ

ข้อดีของ RPA

- เพิ่มประสิทธิภาพในการทำงานที่ดีกว่ามนุษย์
- ลดข้อผิดพลาดที่เกิดขึ้นจากมนุษย์

ข้อดีของ RPA

“ทำงานแบบไม่หยุดพัก และทำงานตามคำสั่งแบบไม่ผิดพลาด”


ตัวอย่างงาน RPA

- สั่งเปิดโปรแกรม / เว็บไซต์ หรือกรอกข้อมูลบนฟอร์มของเว็บไซต์ (keyboard & mouse control)
- ดึงข้อมูลจากเว็บไซต์ (web scraping)
- การออกใบ invoice ที่มีลูกค้าจำนวนมาก
- อ่านข้อความจากไฟล์ภาพ หรือไฟล์ .pdf (Optical Character Recognition : OCR)



Python คือ ภาษาคอมพิวเตอร์ที่ใช้ในการเขียนโปรแกรม (programming language) เกิดขึ้นครั้งแรกในปี ค.ศ. 1990


Top Python libraries for RPA

- 
- pyautoGUI
 - selenium
 - pytesseract
 - openpyxl
 - python-docx
 - PyPDF2
 - OpenCV

pyautoGUI

ไลบรารีที่ใช้สำหรับควบคุมเมาส์ และคีย์บอร์ด

<https://pyautoqui.readthedocs.io/en/latest/>

 PyAutoGUI

latest

Search docs

Installation

Cheat Sheet

Mouse Control Functions

Keyboard Control Functions


Message Box Functions

Screenshot Functions

Testing

Roadmap

pyautogui



Monetize your audience: Fund an OSS project or website with EthicalAds, a **privacy-first ad network**

Docs » Welcome to PyAutoGUI's documentation!

[Edit on GitHub](#)

Welcome to PyAutoGUI's documentation!

PyAutoGUI lets your Python scripts control the mouse and keyboard to automate interactions with other applications. The API is designed to be simple. PyAutoGUI works on Windows, macOS, and Linux, and runs on Python 2 and 3.

To install with pip, run `pip install pyautogui`. See the [Installation](#) page for more details.

The source code is available on: <https://github.com/asweigart/pyautogui>

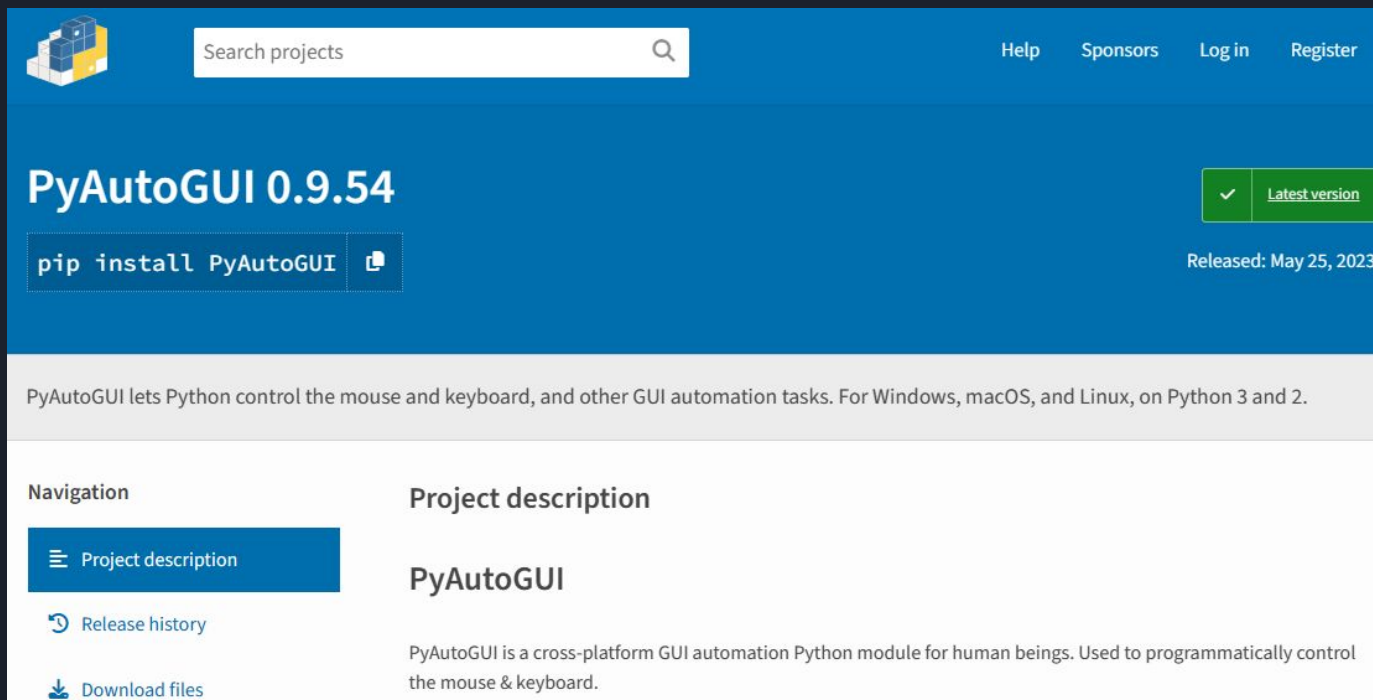
PyAutoGUI has several features:

- Moving the mouse and clicking in the windows of other applications.
- Sending keystrokes to applications (for example, to fill out forms).
- Take screenshots, and given an image (for example, of a button or checkbox), and find it on the screen.
- Locate an application's window, and move, resize, maximize, minimize, or close it (Windows-only, currently).
- Display alert and message boxes.

pyautoGUI

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<https://pypi.org/project/PyAutoGUI/>



The screenshot shows the PyAutoGUI project page on the Python Package Index (PyPI). The page has a blue header with the PyAutoGUI logo (a stack of colored cubes) on the left, a search bar in the center, and links for Help, Sponsors, Log in, and Register on the right. Below the header, the project name "PyAutoGUI" and version "0.9.54" are displayed in large white text. To the right of the version, there is a green button with a checkmark and the text "Latest version". Below the version, there is a button with the text "pip install PyAutoGUI" and a small icon of a terminal window. To the right of this button, it says "Released: May 25, 2023". Below this section, there is a light gray box containing the text: "PyAutoGUI lets Python control the mouse and keyboard, and other GUI automation tasks. For Windows, macOS, and Linux, on Python 3 and 2." Below this box, the page is divided into two columns. The left column is titled "Navigation" and contains three links: "Project description" (highlighted with a blue background), "Release history", and "Download files". The right column is titled "Project description" and contains the text: "PyAutoGUI is a cross-platform GUI automation Python module for human beings. Used to programmatically control the mouse & keyboard."

PyAutoGUI 0.9.54

pip install PyAutoGUI

Released: May 25, 2023

PyAutoGUI lets Python control the mouse and keyboard, and other GUI automation tasks. For Windows, macOS, and Linux, on Python 3 and 2.

Navigation

- Project description
- Release history
- Download files

Project description

PyAutoGUI

PyAutoGUI is a cross-platform GUI automation Python module for human beings. Used to programmatically control the mouse & keyboard.

selenium

ไลบรารีที่ใช้สำหรับกรอกข้อมูลบนเว็บไซต์อัตโนมัติ และดึงข้อมูลจากเว็บไซต์
<https://selenium-python.readthedocs.io/index.html>



Navigation

- [1. Installation](#)
- [2. Getting Started](#)
- [3. Navigating](#)
- [4. Locating Elements](#)
- [5. Waits](#)
- [6. Page Objects](#)
- [7. WebDriver API](#)
- [8. Appendix: Frequently Asked Questions](#)

Selenium with Python

Author: [Baiju Muthukadan](#)

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Note:

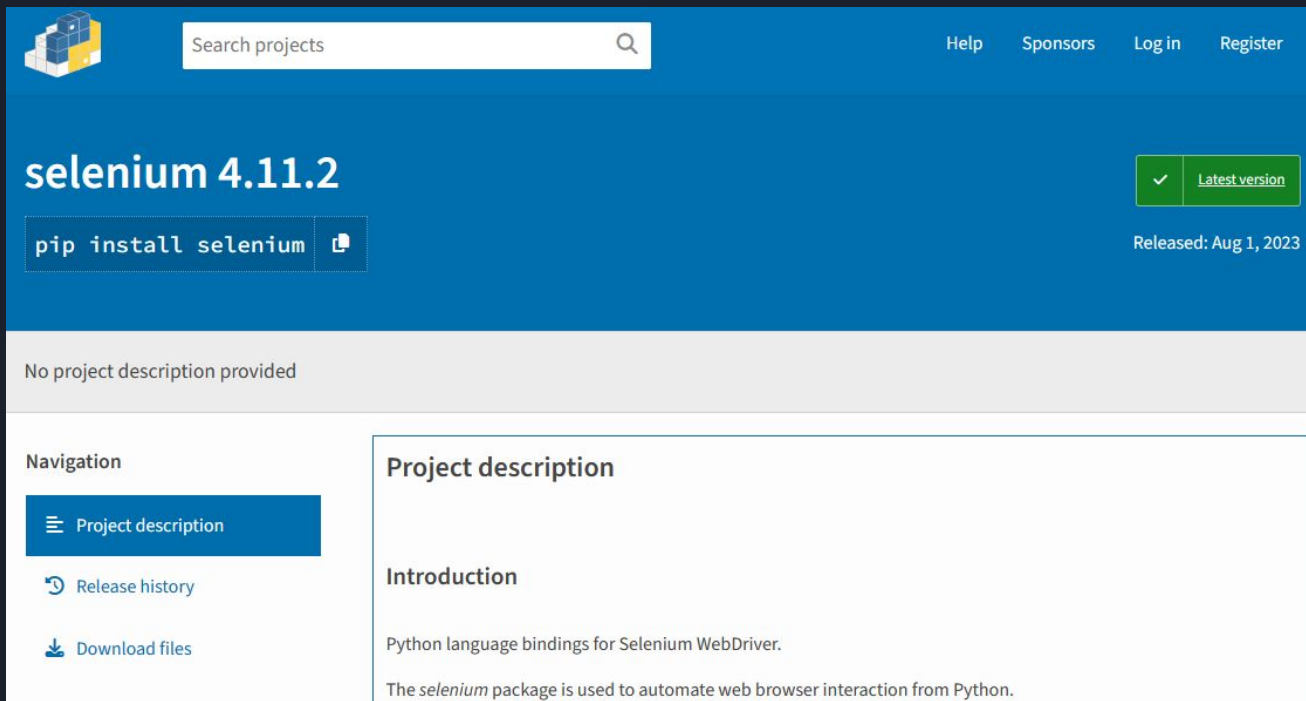
This is not an official documentation. If you would like to contribute to this documentation, you can [fork this project in GitHub and send pull requests](#). You can also send your feedback to my email: baiju.m.mail AT gmail DOT com. So far 60+ community members have contributed to this project (See the closed pull requests). I encourage contributors to add more sections and make it an awesome documentation! If you know any translation of this document, please send a PR to update the below list.

Translations:

- [Chinese](#)
- [Japanese](#)

selenium

ไลบรารีที่ใช้สำหรับกรอกข้อมูลบนเว็บไซต์อัตโนมัติ และดึงข้อมูลจากเว็บไซต์
<https://pypi.org/project/selenium/>



The screenshot shows the Selenium project page on the Python Package Index (PyPI). The page has a blue header with the Selenium logo, a search bar, and links for Help, Sponsors, Log in, and Register. The main content area features the version number 'selenium 4.11.2' in large white text, a green button with a checkmark and 'Latest version', and a button with the command 'pip install selenium' and a copy icon. Below this, it says 'Released: Aug 1, 2023'. A grey banner indicates 'No project description provided'. The page is divided into two columns: 'Navigation' on the left with links for 'Project description', 'Release history', and 'Download files'; and 'Project description' on the right, which includes an 'Introduction' section stating that Selenium is Python language bindings for Selenium WebDriver, used to automate web browser interaction from Python.

Search projects

Help Sponsors Log in Register

selenium 4.11.2

✓ Latest version

Released: Aug 1, 2023

`pip install selenium`

No project description provided

Navigation

- Project description
- Release history
- Download files

Project description

Introduction

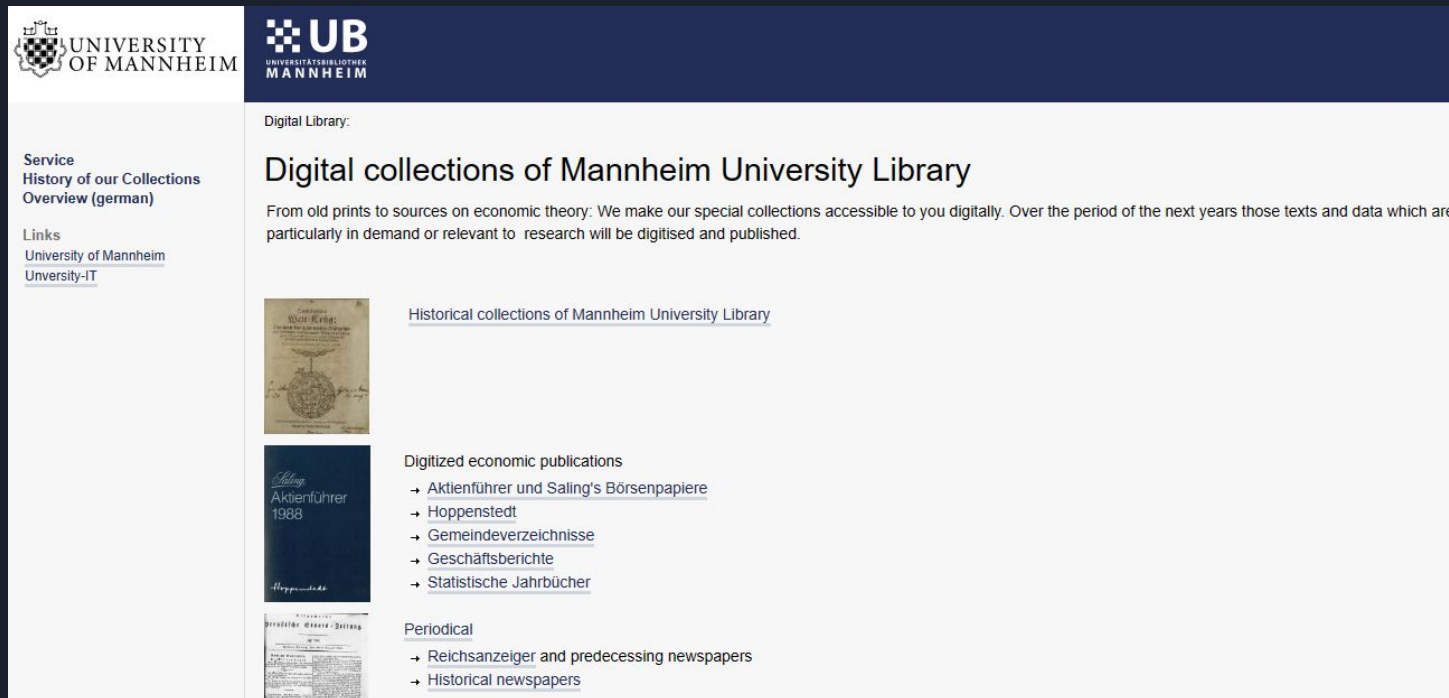
Python language bindings for Selenium WebDriver.

The *selenium* package is used to automate web browser interaction from Python.

pytesseract

ไลบรารีที่ใช้สำหรับอ่านข้อความบนรูปภาพ

<https://digi.bib.uni-mannheim.de/tesseract/>



The screenshot shows the website of the Mannheim University Library's digital collections. The header features the university's logo and name. A left sidebar contains navigation links. The main content area is titled 'Digital collections of Mannheim University Library' and includes a descriptive paragraph. Below this, there are three sections: 'Historical collections of Mannheim University Library' with a book cover image, 'Digitized economic publications' with a list of links, and 'Periodical' with a list of links. The bottom of the page shows a preview of a newspaper page.

UNIVERSITY OF MANNHEIM

UB
UNIVERSITÄTSBIBLIOTHEK
MANNHEIM


Service
History of our Collections
Overview (german)


Links
[University of Mannheim](#)
[University-IT](#)

Digital Library:


Digital collections of Mannheim University Library

From old prints to sources on economic theory: We make our special collections accessible to you digitally. Over the period of the next years those texts and data which are particularly in demand or relevant to research will be digitised and published.

 [Historical collections of Mannheim University Library](#)

 Digitized economic publications

- [Aktienführer und Saling's Börsenpapiere](#)
- [Hoppenstedt](#)
- [Gemeindeverzeichnisse](#)
- [Geschäftsberichte](#)
- [Statistische Jahrbücher](#)

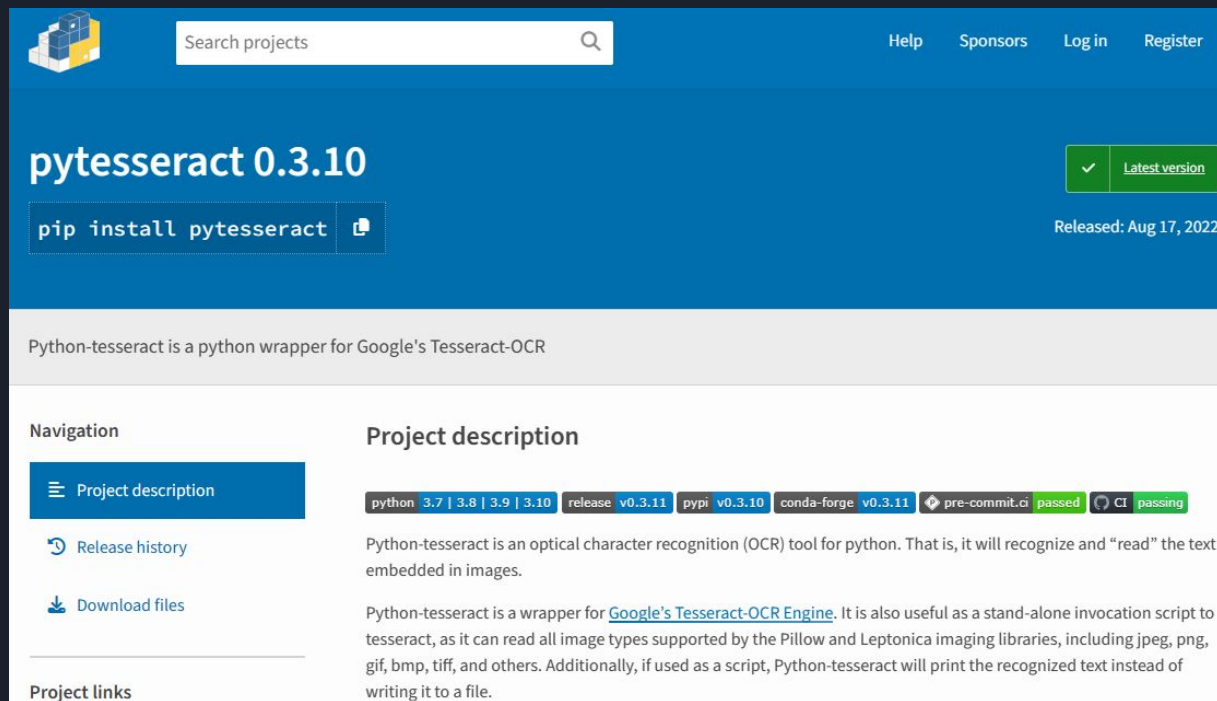
 Periodical

- [Reichsanzeiger and predecessing newspapers](#)
- [Historical newspapers](#)

pytesseract

ไลบรารีที่ใช้สำหรับอ่านข้อความบนรูปภาพ

<https://pypi.org/project/pytesseract/>



The screenshot shows the PyTesseract project page on the Python Package Index (PyPI). The page has a blue header with the PyTesseract logo, a search bar, and links for Help, Sponsors, Log in, and Register. The main section features the project name "pytesseract 0.3.10" in large white text, a green "Latest version" badge, and a "Released: Aug 17, 2022" timestamp. Below this is a code block showing the installation command: `pip install pytesseract`. The page is divided into two main columns. The left column, titled "Navigation", contains links for "Project description", "Release history", and "Download files". The right column, titled "Project description", contains a paragraph about the project and a list of supported Python versions and platforms. The paragraph states: "Python-tesseract is a python wrapper for Google's Tesseract-OCR". The list of supported versions and platforms includes: python 3.7 | 3.8 | 3.9 | 3.10, release v0.3.11, pypi v0.3.10, conda-forge v0.3.11, pre-commit.ci passed, and CI passing.

Search projects

Help Sponsors Log in Register

pytesseract 0.3.10

✓ Latest version

Released: Aug 17, 2022

`pip install pytesseract`

Python-tesseract is a python wrapper for Google's Tesseract-OCR

Navigation

- Project description
- Release history
- Download files

Project description

python 3.7 | 3.8 | 3.9 | 3.10 release v0.3.11 pypi v0.3.10 conda-forge v0.3.11 pre-commit.ci passed CI passing

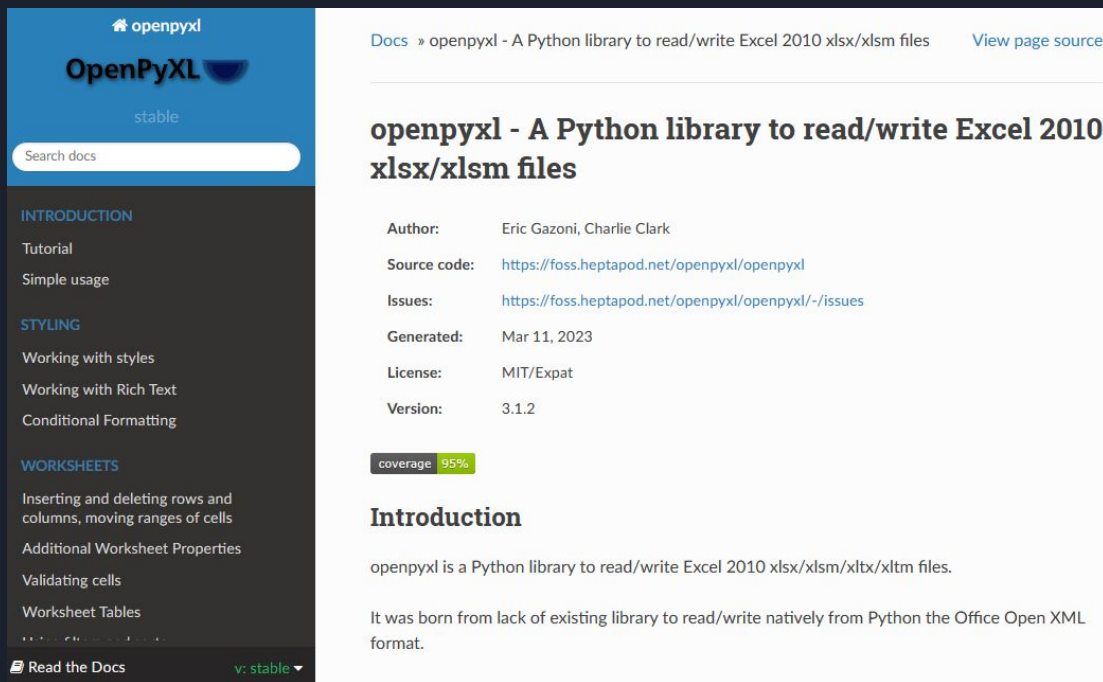
Python-tesseract is an optical character recognition (OCR) tool for python. That is, it will recognize and "read" the text embedded in images.

Python-tesseract is a wrapper for [Google's Tesseract-OCR Engine](#). It is also useful as a stand-alone invocation script to tesseract, as it can read all image types supported by the Pillow and Leptonica imaging libraries, including jpeg, png, gif, bmp, tiff, and others. Additionally, if used as a script, Python-tesseract will print the recognized text instead of writing it to a file.

openpyxl

ไลบรารีที่ใช้สำหรับจัดการไฟล์ excel (อ่าน, เขียน, แก้ไข, บันทึก ฯลฯ)

<https://openpyxl.readthedocs.io/en/stable/>



The screenshot shows the documentation page for openpyxl on Read the Docs. The left sidebar contains a navigation menu with sections: INTRODUCTION (Tutorial, Simple usage), STYLING (Working with styles, Working with Rich Text, Conditional Formatting), and WORKSHEETS (Inserting and deleting rows and columns, Additional Worksheet Properties, Validating cells, Worksheet Tables). The main content area has a breadcrumb trail 'Docs » openpyxl - A Python library to read/write Excel 2010 xlsx/xlsm files' and a 'View page source' link. The title is 'openpyxl - A Python library to read/write Excel 2010 xlsx/xlsm files'. Below this, metadata is listed: Author (Eric Gazoni, Charlie Clark), Source code (https://foss.heptapod.net/openpyxl/openpyxl), Issues (https://foss.heptapod.net/openpyxl/openpyxl/-/issues), Generated (Mar 11, 2023), License (MIT/Expat), and Version (3.1.2). A 'coverage 95%' badge is present. The 'Introduction' section begins with 'openpyxl is a Python library to read/write Excel 2010 xlsx/xlsm/xtlx/xtlm files.' and 'It was born from lack of existing library to read/write natively from Python the Office Open XML format.'

openpyxl

OpenPyXL

stable

Search docs

INTRODUCTION

Tutorial

Simple usage

STYLING

Working with styles

Working with Rich Text

Conditional Formatting

WORKSHEETS

Inserting and deleting rows and columns, moving ranges of cells

Additional Worksheet Properties

Validating cells

Worksheet Tables

Read the Docs v: stable

Docs » openpyxl - A Python library to read/write Excel 2010 xlsx/xlsm files View page source

openpyxl - A Python library to read/write Excel 2010 xlsx/xlsm files

Author: Eric Gazoni, Charlie Clark

Source code: <https://foss.heptapod.net/openpyxl/openpyxl>

Issues: <https://foss.heptapod.net/openpyxl/openpyxl/-/issues>

Generated: Mar 11, 2023

License: MIT/Expat

Version: 3.1.2

coverage 95%

Introduction

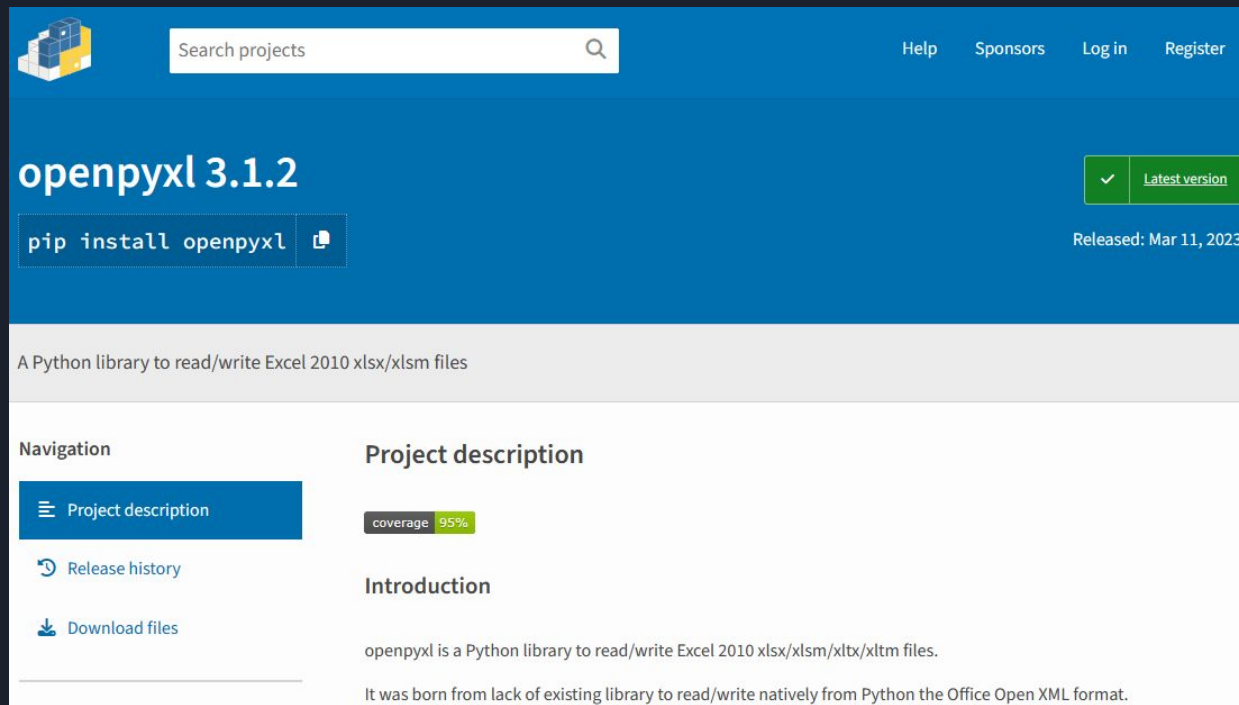
openpyxl is a Python library to read/write Excel 2010 xlsx/xlsm/xtlx/xtlm files.

It was born from lack of existing library to read/write natively from Python the Office Open XML format.

openpyxl

ไลบรารีที่ใช้สำหรับจัดการไฟล์ excel (อ่าน, เขียน, แก้ไข, บันทึก ฯลฯ)

<https://pypi.org/project/openpyxl/>




The screenshot shows the PyPI project page for openpyxl 3.1.2. The header is blue with the PyPI logo, a search bar, and links for Help, Sponsors, Log in, and Register. The main section features the project name 'openpyxl 3.1.2' in large white text, a green 'Latest version' badge with a checkmark, and a blue button with the command 'pip install openpyxl' and a copy icon. Below this, it states 'Released: Mar 11, 2023'. The description 'A Python library to read/write Excel 2010 xlsx/xlsm files' is in a light gray box. The left sidebar has a 'Navigation' section with links for 'Project description' (selected), 'Release history', and 'Download files'. The main content area has a 'Project description' section with a 'coverage 95%' badge and an 'Introduction' section with the text: 'openpyxl is a Python library to read/write Excel 2010 xlsx/xlsm/ltbx/ltm files. It was born from lack of existing library to read/write natively from Python the Office Open XML format.'

Search projects

Help Sponsors Log in Register

openpyxl 3.1.2 ✓ Latest version

`pip install openpyxl` 

Released: Mar 11, 2023

A Python library to read/write Excel 2010 xlsx/xlsm files

Navigation

- Project description
- Release history
- Download files

Project description

coverage 95%

Introduction

openpyxl is a Python library to read/write Excel 2010 xlsx/xlsm/ltbx/ltm files.

It was born from lack of existing library to read/write natively from Python the Office Open XML format.

python-docx

ไลบรารีที่ใช้สำหรับจัดการไฟล์ word (อ่าน, เขียน, แก้ไข, บันทึก ฯลฯ)

<https://python-docx.readthedocs.io/en/latest/>

Table of Contents

- python-docx
 - What it can do
 - User Guide
 - API Documentation
 - Contributor Guide

Next topic

- Installing

Useful Links

- python-docx @ GitHub
- python-docx @ PyPI
- Issue Tracker

Quick search

python-docx

Release v0.8.11 (Installation)

python-docx is a Python library for creating and updating Microsoft Word (.docx) files.

What it can do

Here's an example of what python-docx can do:

Document Title

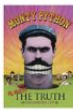
A plain paragraph having some **bold** and some *italic*.

Heading, level 1

Intense quote

- first item in unordered list

1. first item in ordered list



| Qty | Id | Desc |
|-----|-----|----------------------------|
| 1 | 101 | Spam |
| 2 | 42 | Eggs |
| 3 | 631 | Spam, spam, eggs, and spam |

```

from docx import Document
from docx.shared import Inches

document = Document()

document.add_heading('Document Title', 0)

p = document.add_paragraph('A plain paragraph having some ')
p.add_run('bold').bold = True
p.add_run(' and some ')
p.add_run('italic.').italic = True

document.add_heading('Heading, level 1', level=1)
document.add_paragraph('Intense quote', style='Intense Quote')

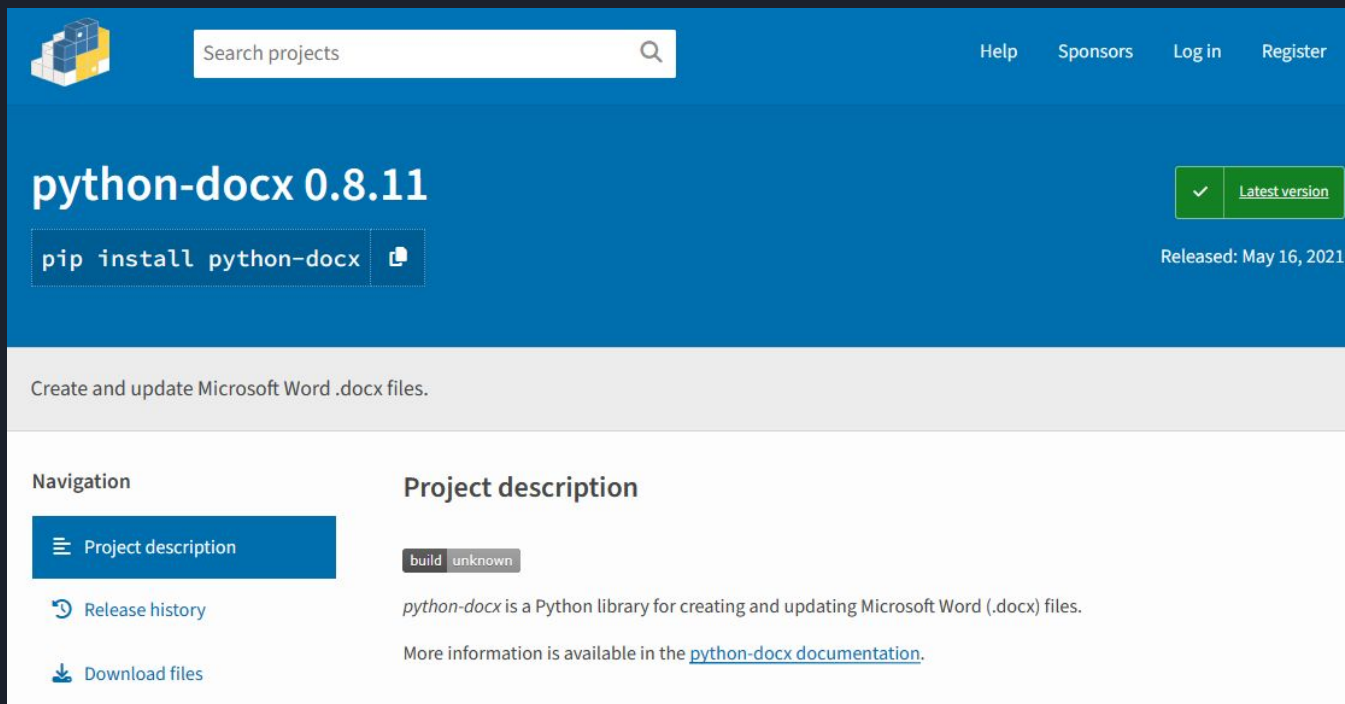
document.add_paragraph(
    'first item in unordered list', style='List Bullet'
)
document.add_paragraph(
    'first item in ordered list', style='List Number'
)

```

python-docx

ไลบรารีที่ใช้สำหรับจัดการไฟล์ word (อ่าน, เขียน, แก้ไข, บันทึก ฯลฯ)

<https://pypi.org/project/python-docx/>




The screenshot shows the PyPI project page for python-docx. At the top, there's a search bar and navigation links (Help, Sponsors, Log in, Register). The main header displays the project name 'python-docx' and version '0.8.11'. A green badge indicates it's the 'Latest version'. Below this, a command box shows 'pip install python-docx' with a copy icon. The release date 'Released: May 16, 2021' is also present. The main content area has a description: 'Create and update Microsoft Word .docx files.' Below this, there's a 'Navigation' sidebar with links to 'Project description' (selected), 'Release history', and 'Download files'. The 'Project description' section shows a 'build' status of 'unknown' and a description: 'python-docx is a Python library for creating and updating Microsoft Word (.docx) files.' It also mentions that more information is available in the 'python-docx documentation'.

Search projects

Help Sponsors Log in Register




python-docx 0.8.11 ✓ Latest version

`pip install python-docx` 

Released: May 16, 2021

Create and update Microsoft Word .docx files.

Navigation

-  Project description
-  Release history
-  Download files

Project description

build unknown

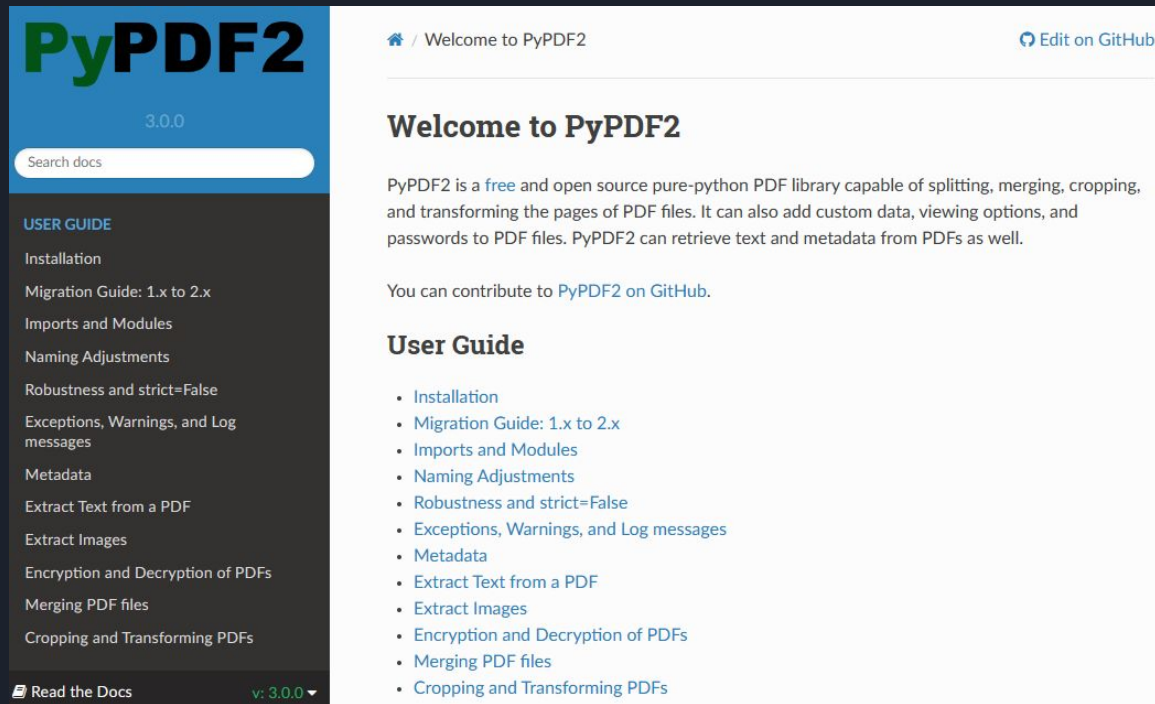
python-docx is a Python library for creating and updating Microsoft Word (.docx) files.

More information is available in the [python-docx documentation](#).

PyPDF2

ไลบรารีที่ใช้สำหรับจัดการไฟล์ pdf (อ่าน, เขียน, แก้ไข, บันทึก ฯลฯ)

<https://pypdf2.readthedocs.io/en/3.0.0/>



PyPDF2
3.0.0

Search docs

USER GUIDE

- Installation
- Migration Guide: 1.x to 2.x
- Imports and Modules
- Naming Adjustments
- Robustness and strict=False
- Exceptions, Warnings, and Log messages
- Metadata
- Extract Text from a PDF
- Extract Images
- Encryption and Decryption of PDFs
- Merging PDF files
- Cropping and Transforming PDFs

Read the Docs v: 3.0.0

Welcome to PyPDF2 [Edit on GitHub](#)

Welcome to PyPDF2

PyPDF2 is a [free](#) and open source pure-python PDF library capable of splitting, merging, cropping, and transforming the pages of PDF files. It can also add custom data, viewing options, and passwords to PDF files. PyPDF2 can retrieve text and metadata from PDFs as well.

You can contribute to [PyPDF2 on GitHub](#).

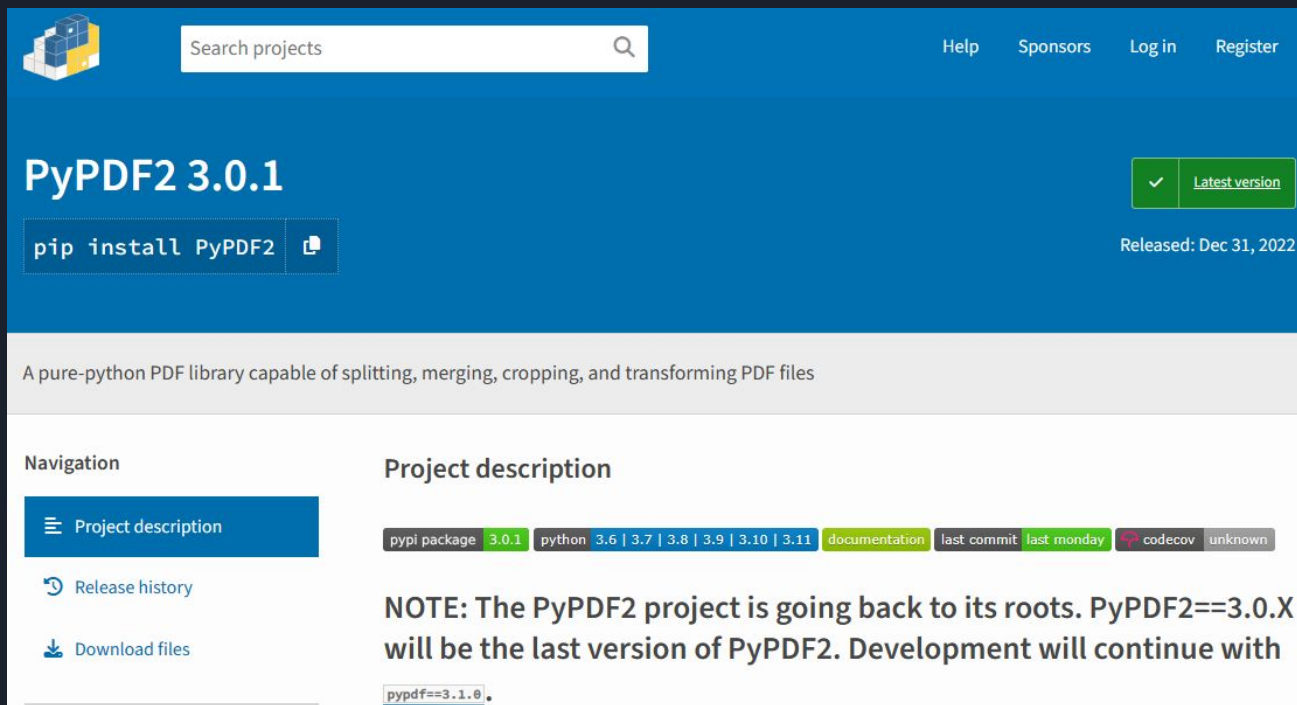
User Guide

- [Installation](#)
- [Migration Guide: 1.x to 2.x](#)
- [Imports and Modules](#)
- [Naming Adjustments](#)
- [Robustness and strict=False](#)
- [Exceptions, Warnings, and Log messages](#)
- [Metadata](#)
- [Extract Text from a PDF](#)
- [Extract Images](#)
- [Encryption and Decryption of PDFs](#)
- [Merging PDF files](#)
- [Cropping and Transforming PDFs](#)

PyPDF2

ไลบรารีที่ใช้สำหรับจัดการไฟล์ pdf (อ่าน, เขียน, แก้ไข, บันทึก ฯลฯ)

<https://pypi.org/project/PyPDF2/>



The image shows the PyPDF2 3.0.1 project page on the Python Package Index (PyPI). The page has a blue header with the PyPDF2 logo, a search bar, and links for Help, Sponsors, Log in, and Register. The main section features the project name "PyPDF2 3.0.1" in large white text, a green "Latest version" button, and a "pip install PyPDF2" button. Below this, a description states: "A pure-python PDF library capable of splitting, merging, cropping, and transforming PDF files". The "Navigation" sidebar on the left includes links for "Project description", "Release history", and "Download files". The "Project description" section contains a note about the project's future development and a list of supported Python versions and other tools.

PyPDF2 3.0.1

pip install PyPDF2

Released: Dec 31, 2022

A pure-python PDF library capable of splitting, merging, cropping, and transforming PDF files

Navigation

- Project description
- Release history
- Download files

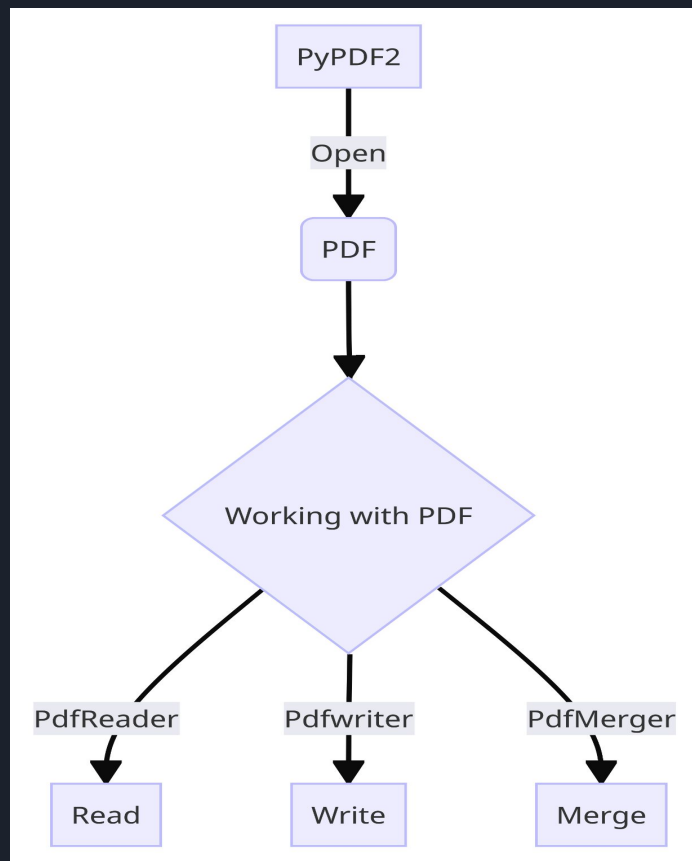
Project description

pypi package 3.0.1 python 3.6 | 3.7 | 3.8 | 3.9 | 3.10 | 3.11 documentation last commit last monday codecov unknown

NOTE: The PyPDF2 project is going back to its roots. PyPDF2==3.0.X will be the last version of PyPDF2. Development will continue with

pypdf==3.1.0

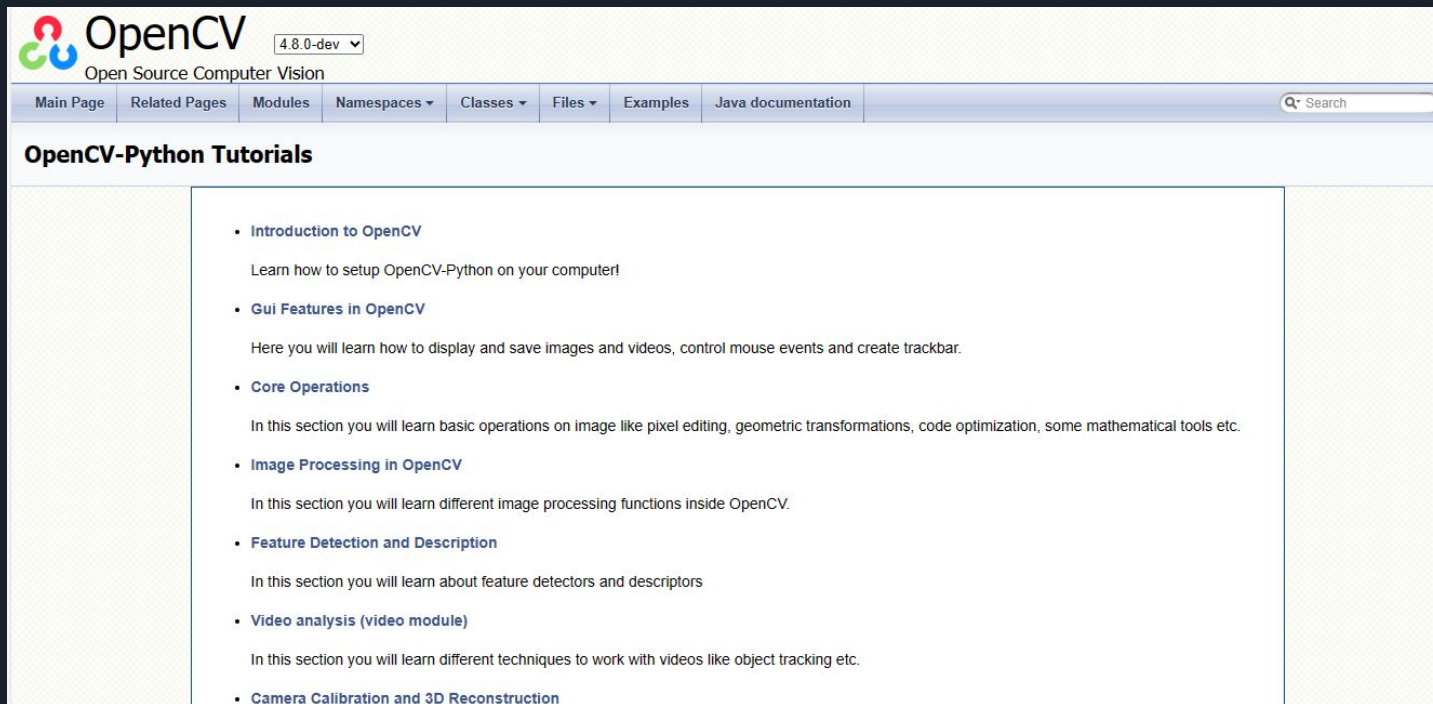
PyPDF2



openCV

ไลบรารีที่ใช้สำหรับการวิเคราะห์ และประมวลผลภาพ

https://docs.opencv.org/4.x/d6/d00/tutorial_py_root.html



The screenshot shows the OpenCV website's Python tutorial section. At the top, the OpenCV logo is next to the text 'OpenCV' and 'Open Source Computer Vision'. A dropdown menu shows '4.8.0-dev'. Below this is a navigation bar with links: 'Main Page', 'Related Pages', 'Modules', 'Namespaces', 'Classes', 'Files', 'Examples', and 'Java documentation'. A search bar is on the right. The main heading is 'OpenCV-Python Tutorials'. Below it, a list of tutorial topics is shown, each with a brief description.

OpenCV 4.8.0-dev
Open Source Computer Vision

Main Page Related Pages Modules Namespaces Classes Files Examples Java documentation Search

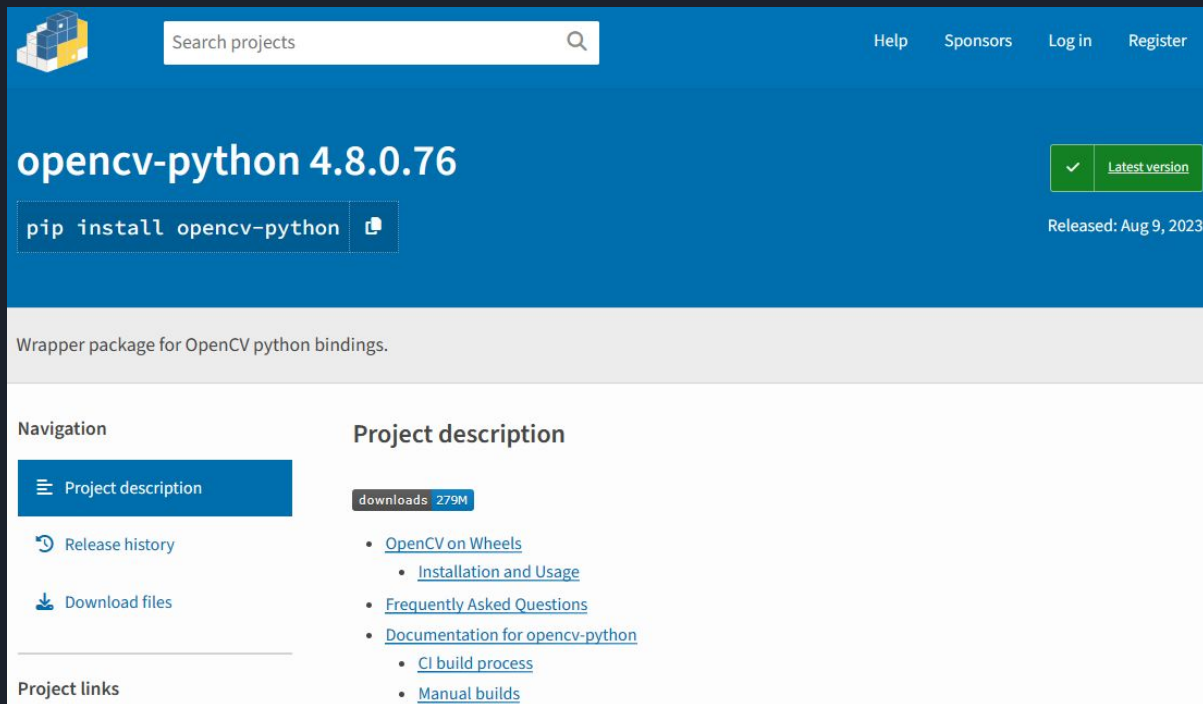
OpenCV-Python Tutorials

- **Introduction to OpenCV**
Learn how to setup OpenCV-Python on your computer!
- **Gui Features in OpenCV**
Here you will learn how to display and save images and videos, control mouse events and create trackbar.
- **Core Operations**
In this section you will learn basic operations on image like pixel editing, geometric transformations, code optimization, some mathematical tools etc.
- **Image Processing in OpenCV**
In this section you will learn different image processing functions inside OpenCV.
- **Feature Detection and Description**
In this section you will learn about feature detectors and descriptors
- **Video analysis (video module)**
In this section you will learn different techniques to work with videos like object tracking etc.
- **Camera Calibration and 3D Reconstruction**

openCV

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<https://pypi.org/project/opencv-python/>



The screenshot shows the PyPI project page for **opencv-python 4.8.0.76**. The header is blue with a search bar and links for Help, Sponsors, Log in, and Register. The main section features the package name and version, a green 'Latest version' badge, and a 'pip install opencv-python' button. Below this, a grey bar states 'Wrapper package for OpenCV python bindings.' The page is divided into two columns: 'Navigation' on the left with links to Project description, Release history, and Download files; and 'Project description' on the right, which includes a 'downloads 279M' badge and a list of links: OpenCV on Wheels (with Installation and Usage), Frequently Asked Questions, and Documentation for opencv-python (with CI build process and Manual builds).

Search projects

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opencv-python 4.8.0.76

✓ Latest version

Released: Aug 9, 2023

`pip install opencv-python`

Wrapper package for OpenCV python bindings.

Navigation

- Project description
- Release history
- Download files

Project description

downloads 279M

- OpenCV on Wheels
 - Installation and Usage
- Frequently Asked Questions
- Documentation for opencv-python
 - CI build process
 - Manual builds