**How to use the image generator tool?**

Prerequisites (Windows):

1. Install Blender 3D Software

Install Blender 3D software, version 3.5, as it is compatible with all functionalities within the BlenderProc Python library. Refer the documentation [here](https://docs.blender.org/api/current/index.html)

You can download Blender 3.5 from the official Blender website [here](https://download.blender.org/release/Blender3.5/).

2. Install BlenderProc Python Library

Install the BlenderProc Python library via pip. BlenderProc is a Python wrapper around the Blender API that simplifies 3D rendering tasks. Refer the documentation [here](https://dlr-rm.github.io/BlenderProc/).

*pip install blenderproc*

Steps to Run the Script:

1. Clone the Project Repository

First, you need to clone the project from the Git repository. Use the following command in your terminal or command prompt:

*git clone <* *repository link>*

2. Execute BlenderProc within Blender's Python Environment

BlenderProc must be executed within Blender’s Python environment, which means that the standard Python interpreter will not work for these scripts. Use BlenderProc’s command-line interface instead.

3. Run the Script with BlenderProc

To run your Python script, use the following command format:

*blenderproc run <your\_python\_script>*

Example:

*blenderproc run image\_gen.py*

4. Batch Rendering for Efficiency

For rendering multiple images in a batch, you can use the provided batch file image\_gen.bat. Batch rendering allows you to render several scenes efficiently without running them all at once manually.

To use the batch script:

Simply double-click the image\_gen.bat file, or

Run it from the command line like this: image\_gen.bat

5. Configure Render Settings in image\_gen\_config.yaml

All user-configurable settings, such as 3D models path, output directory path, resolution, output format, are located in the image\_gen\_config.yaml file. Open this file with any text editor to adjust the settings to your needs.

6. Main Python Script for Automation (image\_gen.py)

The main Python script, image\_gen.py, automates the entire rendering process by using both the BlenderProc library and the Blender Python API. This script handles:

* Scene setup
* Object manipulation
* Camera and light placement
* Rendering images

7. Visualize COCO Annotations or HDF5 Files

To visualize the COCO annotations or an HDF5 file, use the following commands:

*blenderproc vis coco [-i <image index>] [-c <coco annotations json>] [-b <base folder of coco json>]*

example

*blenderproc vis coco -b code\output\test\_final -i 50 -c coco\_annotations.json*

A person wearing a helmet and standing next to a purple table

Description automatically generated

*blenderproc vis hdf5 <path to .hdf5 file>*

example:

*blenderproc vis hdf5 code\output\test\_final\hdf5\69.hdf5*

A person sitting at a table

Description automatically generated

A person standing next to a table

Description automatically generated