Python Support for Photoneo 3D Sensors using GenICam

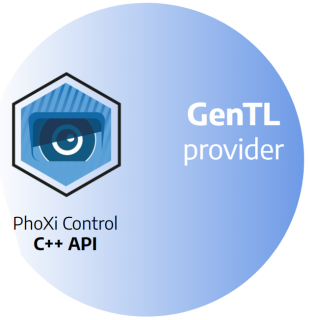
User guide on using GenICam interface in Python

What is GenICam?

The Generic Interface for Cameras standard is the base for plug & play handling of cameras and devices. It was developed by European Machine Vision Association (EMVA) (https://www.emva.org/standards-technology/genicam/)

GenICam with Photoneo devices

GenICam support was introduced with PhoXi Control 1.8.2. GenICam functionality is provided via GenTL library that works as a wrapper around PhoXi Control C++ API. PhoXi Control has to be running in order to use GenICam interface.



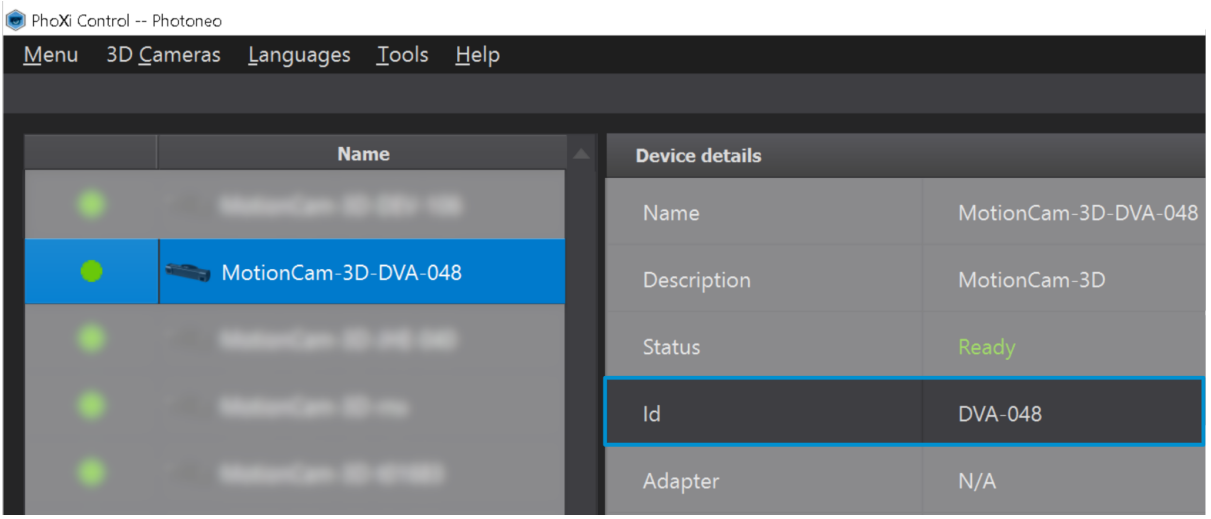
GenICam support in Python

The requirements to run the Python example with GenICam are:

- Python 3.7.0
- PhoXi Control 1.8 or higher
- Examples located at C:\Program Files\Photoneo\PhoXiControl-x.x.x\API\examples\GenTL\python
- Libraries: NumPy, Open3D, harvesters - versions specified in *requirements.txt*

Running the example

- Install Python and required libraries
- Install and launch the PhoXi Control
- Find and copy the ID of the device



- Open one of the examples located at C:\Program Files\Photoneo\PhoXiControl-x.x.x\API\examples\GenTL\python

  Note: This folder contains more examples, however, the parts of the code this document refers to are the same. The *.py file will be referred to as example.py

- Paste the ID into the *example.py*

```
Line 9: device_id = "PhotoneoTL_DEV_ID"
```

```python
import numpy as np
import open3d as o3d
import cv2
import os
import sys
from harvesters.core import Harvester

#PhotoneoTL_DEV_<ID>
device_id = "PhotoneoTL_DEV_ID"
if len(sys.argv) == 2:
    device_id = "PhotoneoTL_DEV_" + sys.argv[1]
print("--> device_id: ", device_id)

cti_file_path = os.getenv('PHOXI_CONTROL_PATH') + "/API/bin/photoneo.cti"
print("--> cti_file_path: ", cti_file_path)
```

- Make sure that the following line points at the correct directory in the PhoXI Control Installation directory (see the *PHOXI_CONTROL_PATH* environment variable)

```
Line 14: cti_file_path = os.getenv('PHOXI_CONTROL_PATH') +
"/API/bin/photoneo.cti"
```

- Run the *example.py* script. The script will initiate a freerun acquisition on the device and outputs a texture and a point cloud as figures.
- After closing the texture and point cloud figures, the script will stop the acquisition and disconnect the device.