



Hristo Goumnerov <goumnerov@gmail.com>

Questinos, Clarification of parameters - Hristo

Alex Liberzon <alex.liberzon@gmail.com>

Thu, Mar 6, 2014 at 5:12 AM

To: openptv@googlegroups.com

Hi Hristo

On Thursday, March 6, 2014 12:16:43 AM UTC+2, Hristo Goumnerov wrote:

Hello All,

I am in the process of analyzing the standard, synthetic images from <http://www.piv.jp/image3d/image-e.html> case 352 and I have a couple of brief questions. Currently, I am trying to optimize the performance of the software in order to obtain optimal results, so I am varying the parameters. Firstly, my main question is:

After running the sequence without display, is the rms, rms x, etc. the uncertainty of how close the tracked position is to the actual position of the particles, and does reducing this metric provide better results?

I have run the images and used a different grey value threshold from Dr. Liberzon's run and I obtained a lower rms, so I am wondering if I should continue trying to reduce the rms. Moreover, after consulting with another student in my laboratory who has PIV / PTV experience, we were unsure what the following parameters mean and/or how they are calculated:

- tolerable discontinuity (particle recognition tab in main parameters window)

the value in terms of intensity (grey values) that is tuned to distinguish between a single particle with some illumination changes over it's surface versus the two overlapping particles. this parameters is used to split the overlapping ones or to keep together particles that are large and their brightness changes from the edges (typically) to the center (darker, less diffraction)

- min corr for ratio (criteria for correspondences tab in main parameters window)

correlation between the size/shape of the particle in the following images, this parameter is used to allow selecting complex objects with some preference to their shape. usually not valid for "identically" looking particles

- sum of gv (criteria for correspondences tab in main parameters window)

sum of grey values (intensity) of the particle

- pixel size (image properties section, calibration data detection tab in calibration parameters window)

size of the pixel in physical units of millimeters of your camera sensor. it was an order of magnitude of 7 microns for CCD cameras and now it's 20 microns in large CMOS sensors. If you don't have it, you can use 10

microns and remember to adjust the focal lengths and the distances such that you get the proper magnification. Of course you can use also 1 mm, in any case, some adjustment is needed in other parameters.

Lastly, I have not been able to find any documentation on how to use the python post processing code. I downloaded the postptv folder, and read the readme and txt files, but I cannot find any instructions per se. I have Dr. Luethi's post processing code (January 2013) and I am learning how to use that along with the MATLAB codes to obtain visual information, but Dr. Liberzon recommended to do post processing in python, hence my question.

we have tmp.py in the postptv as an example, test folder full of tests and

<http://nbviewer.ipython.org/gist/openptv-user/9067177>

After I complete my study of these images, I will proceed with either an experimental study or another study of synthetic images, but in this case with CFD results. When I have completed the research I will submit all documentation and results to whomever would be interested. I am also writing more detailed instructions, which could perhaps be added to the current documentation.

please, if you write the documentation, use our instructions of how to add documentation from: <http://openptv-python.readthedocs.org> or from www.openptv.net

Thanks in advance to all willing to help me and who are involved in the OpenPTV project.

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