

Exercise 1

- Open Downloads\Vjezbe in VSC
- Open kfpcs_registration.cpp
- Initialize necessary parameters (numThreads is given as an example) number of samples, delta, approximative overlap and lambda
- Do the registration for datasets axial_downsampled_100.pcd and axial_downsampled_100_partial_60_full_transformation.pcd
- Choose different values (at least two for each) for parameters to see the difference in performance

Exercise 2

- Open Downloads\Vjezbe in VSC
- Downsample bun000.pcd to 4000 – 5000 points
- Do the translation 300 mm along x-axis in positive direction, 200 mm along y-axis in negative direction, for z-axis choose yourself
- Perform the registration

Exercise 3

- Open Downloads\Vjezbe in VSC
- Cut the bunny head from bun000.pcd
- Downsample it to 500 – 1000 points
- Do the transformation with rotating the head about x-axis by 60° , about y-axis by 30° and about z-axis by 90° . If you want, add the translation.
- Perform the registration
- Do the registration for bunny_downsampled.pcd and bunny_downsampled_gauss_1_full_transformation.pcd. What do you observe?

Exercise 4

- Open Downloads\Vjezbe in VSC
- Perform the registration for
cloud_..._549_unorganized.pcd and
cloud_..._451_unorganized.pcd.

Student assignment - seminar

- Open Downloads\Vjezbe in VSC
- Open kfpcs_registration.cpp and change the number of iterations (put between 10 and 15)
- Perform the registration for given armadillo datasets and bunny datasets
- Compare obtained results via Frobenius norm and RMSE (already written in terminal)
- Do the registration for bunny head dataset you got from Exercise 3. BE CAREFUL, you have to change the theoretical matrix in kfpcs_registration.cpp to be consistent with your rotational and translational parameters
- Adjust registrational parameters if needed and use log file (uncomment from the kfpcs_registration.cpp) to write the results. BE CAREFUL to update path for logfile. Create one for armadillo and one for your bunny dataset.