

REVIEW
on bachelor's thesis of the SpbU student
Shevchenko Viacheslav
on topic Development of methodology for comparing visual odometry approaches using open datasets

Relevance of the research topic:

The thesis is devoted to the development of a methodology for comparison of methods of map creation based on the processing of video data. Currently, the visual odometry is widely used in various fields, such as robotics, automotive industry, etc. In this regard, the solution of the problem of developing a comparison methodology and choosing an optimal approach to the creation of a map is relevant.

Brief description of the work structure and sections:

The thesis consists of 39 pages. The thesis presents review of existed approaches for preparation of environment map, its comparison as well as experimental results.

Advantages of work:

The thesis contains a detailed analysis of the disadvantages and advantages of visual odometry methods, which allows to easily choice of a method depending on the conditions and tasks. The comparison and approbation of the visual odometry methods was carried out on the following databases: Tum Mono, KITTI, ApolloScape. The application of the DSO-based method provides the greatest robustness to external influences. The work shows the high level of the theoretical preparation of the student and his ability to work with technical literature.

Disadvantages of work:

There is no justification for choosing the LSD-SLAM method from the subgroup of SLAM-based methods, for comparison with other approaches for map creation. In addition, there is no justification for choosing AUR-ROC and AUR-PR metrics to evaluate the experimental data. In addition, the design of the work, in particular the design of lists in sections, does not comply with GOST.

The conclusion about the thesis:

The thesis of Shevchenko V. "Development of methodology for comparing visual odometry approaches using open datasets" meets the basic requirements for graduation qualifications.

