

6 Conclusion and Future work

In this dissertation I have presented a software based solution for video stabilization that provides higher control to the user in determining the level of stabilization based on regression analysis. This has addressed a major drawback the most of existing general purpose software video stabilizers are facing due to removal of the desired motions or leaving undesirable motions in video streams because of the incapability in determining what to be considered as wanted/unwanted.

The proposed stabilization scheme has consistently produced output videos whose quality was accepted to many people.

Although the algorithm serves the purpose of removing unwanted camera shake in most instances, it may fail when a moving object covers the most of the area of the image. This can be improved by designing background identifying algorithm to handle this case.

In addition, optical flow algorithm expects that the two images used for flow calculations have considerable area in common and those sections of the images have undergone only minor changes (as described in section 4.1.2.1 this is due to an assumption of optical flow equation). However this may not be satisfied under certain rare conditions where this application may produce erroneous results. I suggest a future enhancement to overcome this situation which may range from alerting the user about the accuracy of the results up to completely addressing this case in the program. The commercial software used for Regression Analysis can be replaced by a routine developed to handle these operations in future which may enable this to be available as free software. Reconstruction of undefined areas can be improved by applying some image processing operations as required. All image processing applications analyze the scene based on image intensity and like most of them, this application also expect those changes in intensity levels are due to camera/scene movements which is not correct in some cases because this also can happen due to changes in

illuminations, shadows etc. This is a limitation of the application that may lead to wrong results in such instances.

In general the proposed solution serves its objectives with certain limitations in the algorithm which can be further enhanced in future.



University of Moratuwa, Sri Lanka.
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