

AU Status

Undergraduate or PG Taught

Your aber.ac.uk email address

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Full Name

Joseph James

Please enter the name of the person responsible for reviewing your assessment.

Reyer Zwiggelaar

Please enter the aber.ac.uk email address of the person responsible for reviewing your application

rrz@aber.ac.uk

Supervisor or Institute Director of Research Department

cs

Module code (Only enter if you have been asked to do so)

CS39440

Proposed Study Title

MMP: Mobile Vision Based Risk Detection: Using computer vision to detect potential collision risks in a Parrot AR.Drone 2.0

Proposed Start Date

25/01/2016

Proposed Completion Date

04/05/2016

Are you conducting a quantitative or qualitative research project?

Mixed Methods

Does your research require external ethical approval under the Health Research Authority?

No

Does your research involve animals?

No

Are you completing this form for your own research?

Yes

Does your research involve human participants?

No

Institute

IMPACS

Please provide a brief summary of your project (150 word max)

This project aims to implement vision based autonomous object avoidance within a monocular quadcopter. Using Harris Corners I detect features, then track these features using Lucas-Kanade optical flow. These interest points are then used to predict background motion/camera motion via a RANSAC generated homography. After this, the outlying interest points are clustered together based on their motion vectors/motion vector angles using an agglomerative hierarchical clustering technique. These clusters are then refined using k-Nearest Neighbours, after which the clusters are ensured to be consistent throughout the video

feed. Each cluster is then used as an object and it is determined whether or not it is a risk to be avoided, if it is its position is used to allow the drone to avoid the object.

Where appropriate, do you have consent for the publication, reproduction or use of any unpublished material?

Yes

Will appropriate measures be put in place for the secure and confidential storage of data?

Yes

Does the research pose more than minimal and predictable risk to the researcher?

No

Will you be travelling, as a foreign national, in to any areas that the UK Foreign and Commonwealth Office advise against travel to?

No

Please include any further relevant information for this section here:

If you are to be working alone with vulnerable people or children, you may need a DBS (CRB) check. Tick to confirm that you will ensure you comply with this requirement should you identify that you require one.

Yes

Declaration: Please tick to confirm that you have completed this form to the best of your knowledge and that you will inform your department should the proposal significantly change.

Yes

Please include any further relevant information for this section here: