

Review of Bachelor's Thesis

Student: Lapšanský Simon
Title: Detection and Recognition of Drone Movement in Video (id 25109)
Reviewer: Sakin Martin, Ing., DITS FIT BUT

- 1. Assignment complexity** **average assignment**
The topic of the thesis has an average difficulty. The work deals with the current topic of drone tracking in an image so the student didn't have to start from scratch.
- 2. Completeness of assignment requirements** **assignment almost fulfilled**
The point 2 is not perfectly fulfilled, but it's not the student's fault directly. Student used a smaller available database in order to meet other points and get final results.
- 3. Length of technical report** **within minimum requirements**
The scope of the technical report is approaching the lower limit.
- 4. Presentation level of technical report** **65 p. (D)**
The division of chapters is strangely divided. Chapter 2 is very short (only one page) and other chapters have very deep immersion of subsections (eg 3.1.1.2). Chapter 6 contains a lot of information that I would expect in the theoretical part.
It is not always easy for readers to find out what belong to: whether it is another section or a subsequent subsection.
- 5. Formal aspects of technical report** **75 p. (C)**
The typographic and linguistic work is correct.
But there are many numbered headings where not necessary, some of the formulas are not numbered (eg subsection 3.1.1.1) and some pictures are poorly centered (eg fig 6.6, 6.7).
- 6. Literature usage** **50 p. (E)**
The bibliography contains works related to the topic. However, about seven sources are mentioned here only for pictures.
Also, some subchapters probably contain informations without specifying the source (eg from subchapter 3.1.2, 3.2, 6.2).
- 7. Implementation results** **85 p. (B)**
Implementation output includes annotated code, datasets (drone and roboflow videos) and commissioning instructions. I didn't have the opportunity to see the application running.
- 8. Utilizability of results**
This work has elements of a compilation character. A combination of tools and libraries is used here (eg YOLO, google collab, Roboflow) controlled by python scripts.
The work could be useful, but only after training the bigger neural network on multiple drones.
- 9. Questions for defence**
 - Can the learned network recognize other objects in the sky? (eg plane, helicopter, sun)
 - You are now evaluating frame by frame. Have you considered adding context between frames? (because a drone can have different flight characteristics than a bird)
- 10. Total assessment** **61 p. satisfactory (D)**
The work is well thought out and a lot of work and testing is seen, but to get better results it would be necessary to get a much larger database of different drones and a more powerful machine for processing. Also the technical report have some problems so I propose a grade of **D**.

In Brno 3 June 2022

Sakin Martin, Ing.
reviewer