

## **SpaceMaster Diploma Thesis Review** **- supervisor -**

**Name of student:** Sharathkumaar Mohanasundaram

**Thesis topic:** Design and simulation of satellite attitude stabilization control laws

**CTU Supervisor:** Doc. Ing. Martin Hromčík, Ph.D., DCE FEE CTU in Prague

Sharathkumaar is a Round 9 SpaceMaster student at CVUT. His diploma project was assigned in February 2015. The goal was to create a set of appealing simulation examples that I would use in the lectures and labs of the courses Space Engineering and Flight Control Systems.

The thesis submitted in Spring 2016 was rejected by the State Examination Committee with a recommendation to elaborate it and re-write the manuscript.

Now my evaluation of the revised version follows, based on the concerns I raised related to the first submission. Let me recapitulate my remarks I made a year ago, and let us see how those concerns of mine have been addressed in the resubmitted version.

Remark 1 from review of Version 1:

“During the year and a half work on the assignment, the student delivered a set of rudimentary simulation examples adopted from the textbook by Bryson. This itself would be OK as a starting point – and it was indeed my recommendation in Winter 2014 to start with this book. However, there are no further steps made that I assumed, like fitting the simulation models parameters to existing space projects and missions, combining the functionalities of the control subsystems in complex models, consider couplings effects.”

What changed / got improved with Version 2:

I cannot see any substantial change. There are still no realistic models presented, no complex tasks / combining functionalities attempts have been made and none are reported.

Remark 2 from review of Version 1:

“This is a result of the student’s approach to consultations and cooperation with me as a supervisor. There was not a single one technical consultation realized during the whole course of the project. I had virtually no possibility to express my views on the results and planned steps, the fact that Sharatkumaar actually submitted the thesis this Summer came as a big surprise to me.”

What changed / got improved with Version 2:

Nothing. Virtually nothing.

Remark 2 from review of Version 1:

“Specific critical comments: No discussion of results, no assessment, no discussions of alternative approaches – this is completely missing. ...”

What changed / got improved with Version 2:

Nothing.

Based on the above arguments, my suggestion remains the same:

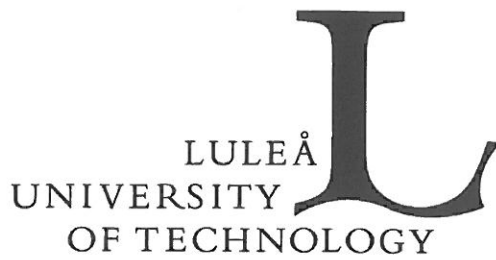
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in accordance to ECTS.

2017/09/06

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Date

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CTU Diploma Project Review  
Kiruna, May 29 2017

CTU Diploma Project review- 2<sup>nd</sup> reviewer's evaluation of master thesis with title "Design and simulation of satellite attitude stabilization control laws " by Space Master student Sharatkumaar Mohanasundaram.

I find that the goal of the thesis project fulfils the requirements of a master thesis in space technology. The work concerns development of a set of advanced control design tools and simulation scenarios related to control of spacecrafts. The simulation tool should be accompanied with a comprehensible documentation/manual.

The bulk part of the thesis, chapters 2-8, is word by word (cited) copied from Arthur E. Bryson, Jr. "Control of spacecraft and Aircraft", Princeton University Press (ref. [4] in thesis). This includes almost the complete text, the equations, figure caption and all drawings. The student has taken the book examples and changed some parameters slightly, thereby getting figures similar to the figures for the examples in the book, the figure caption is copied from Bryson. The only work done by the student is to set up MATLAB matrix operations from the equations given in the book and plotting the figures.

There are some minor parts that are not copied from Bryson, but I have also here found parts cited more or less word by word from other sources.

*Since the thesis is plagiarized the suggested grade is fail F.*

This review serves solely for the purposes of the diploma project defense at CTU. LTU official evaluation for the SpaceMaster double degree will follow the thesis defense and may differ from this review report and suggested grade.

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