

Supervisor assessment of Bachelor's Thesis

Student: Filo Jakub

Title: Lunar Landing Simulation (id 21978)

Supervisor: Chudý Peter, doc. Ing., Ph.D. MBA, UPGM FIT VUT

1. Assignment comments

The selected topic represents a complex task with the effort evenly distributed between the estimation of an optimal Lunar descent trajectory and the design and implementation of a 3D visualization environment for the landing maneuver interpretation. In order to evaluate the different perspectives of the Lunar Module's approach and landing, the estimated optimal descent trajectory and the landing profile derived from the historical Apollo 11 mission reports were compared.

2. Literature usage

The author worked successfully with a portfolio of topic relevant references. The author performed a tailored research on the history of Apollo missions, astrodynamics modeling as well as optimal control tasks. The author successfully mastered the utilization of published resources to estimate the optimal trajectory for the Lunar landing simulation framework.

3. Assignment activity, consultation, communication

The author demonstrated a high level of commitment in achieving excellent results. The author attended scheduled meetings regularly and was well prepared. He meaningfully contributed to the meeting discussions and was subsequently able to draw individual conclusions and transforming them into an operational concept. Communication with the author was conclusive.

4. Assignment finalisation

Both, the implementation part and the text part of the thesis have been finished in advance of the deadline and the content of the thesis has been examined. Minor modifications originating from the meeting discussions and periodic reviews have been included into the thesis.

5. Publications, awards

Unknown

6. Total assessment

excellent (A)

The student's overall activity and motivation were at a high level throughout the entire assignment. Achieved results contribute to the overall authenticity of the optimal Lunar landing simulation and represent a solid basis for a potential future research on optimal descent trajectory design and spacecraft control. The amount of demonstrated knowledge and focus needed for successfully accomplishing the thesis was well beyond the usual expectations. I recommend the thesis for the defense. Suggested grade as based on the above mentioned: **Excellent (A).**

In Brno 30. May 2019

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