测控技术与仪器专业英语

专题二：学术英语写作

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目录

- 学术英语特点
- 英语学术论文结构

学术英语特点

- Making tentative statements (不要太绝对，话不要太满）
- Objectivity (客观)
- Use of passive voice (被动语态)
- Nominalization （名词化）
- Formality (正式）
- Discipline-specific vocabulary（专业词汇）

Writing Procedures of academic papers

- 1 Choosing a topic
- 2 Preparing a working bibliography
- 3 Collecting Information(1st and 2nd hand)
- 4 Outlining the paper
- 5 Writing the paper (1st draft, revision,editing, format,etc.)
- 6 Listing references (bibliography)
- 7 Writing Abstract
- 8 Printing and proofreading

The general structure of a academic paper

- 1 Title
- 2 Author's name(s)
- 3 Abstract
- 4 Key words
- 5 Body
- 6 Acknowledgements (if any)
- 7 Endnotes
- 8 References
- 9 Appendix (if any)
- 10 Résumé (if required)

The general content of Body

- （1） Introduction
- (background, overview, brief introduction of your work, significance)
- （2）Modeling & method / Method and materials

- （3）Simulation & Experiment

- （4）Conclusion

Title

- Descriptive & Comprehensive, indicating the content
- Be specific instead of being ambiguous and general
- Concise, not wordy
- Noun phrase
- Using “:” or” —” to show subtitle
- Short: no longer than 20

Abstract

- a mini-version or a miniature of the document/report
- Short, concise, generalized and objective

indicative/descriptive abstract
说明性(或称指示性)摘要

informative abstract
资料性(或称报道性)摘要

informative-indicative abstract
结合型摘要

Autonomous quadrotor flight is already a well-investigated area of research. Nonetheless, it must still be considered contemporary engineering science. Applications span from advanced aerial maneuvering to swarm flight; in this work the case of a quadrotor carrying a slung load is analyzed.

In a novelty approach the ambition of directly controlling the load position is pursued. This has become possible by the development of fast and reliable monitoring systems, as encountered in a variety of vision based control tasks. The first step toward the objective is achieved by deriving well-founded models of the system at hand, using Newton-Euler as well as Lagrange-Euler formalisms for redundancy reason. Secondly, an appropriate two-dimensional model is found. At hand of this simplified model, linear and non-linear control strategies are assessed with respect to their applicability. Beyond this, a trapezoidal trajectory generator is developed. It may take non-zero initial as well as final velocities into account and synchronizes multi-dimensional profiles. Ultimately, linear quadratic control approaches seem to be most promising and are applied successfully to the three-dimensional model.

Key words

- 3-8 words
- Noun phrases or noun
- Abbreviation(universally accepted): IP, AIDS, CAM
- Separated by “,” or ” ;”
- Synonyms can't be used

Body-Introduction

- Introduces the **purpose,innovation and significance** of the present research or the application of the new algorithm,model, method, tool, equipment, etc.

- Background
- Include this if your work is interdisciplinary, that is, spans two or more traditional fields.

Body-Method and Materials

- Define the method, theoretical approach, instrument;
- Show links between your method and other methods
- Justify your method

Body-Results /Simulation/Experiment

- Presents the findings of the study in both figures (tables, graphs, diagrams) and in written text.

- Numerical results (数据结果)
- Theoretical results (理论结果)
- Experimental results (实验结果)
- Simulation results (模拟结果)

Body-Discussion

- Give comments on results, including those generalized from the results, explanation of possible reasons for the results and comparison of present results with results from other studies.

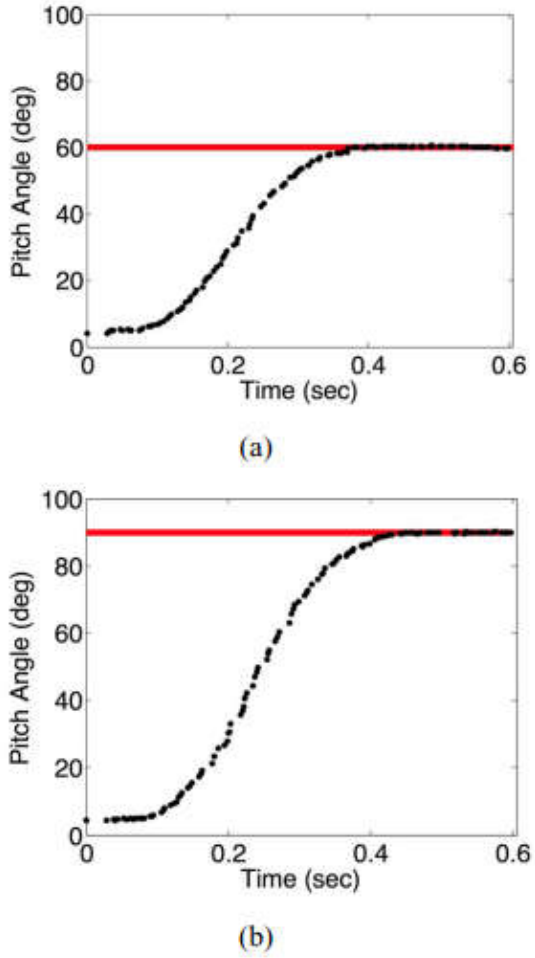

Fig. 6. Pitch angle response to step inputs: (a) tracking 60°; (b) tracking 90°.

We performed experiments to characterize the performance of the attitude controller. The quadrotor was commanded to gain vertical velocity in order to enter a free-fall state. Then a desired pitch angle was commanded for 0.6 seconds while a nominal net thrust of 0.2mg was commanded.

The data shown in Figure 6 demonstrates the performance for desired angles of 60◦ and 90◦. This data justifies the assumption that the pitch angle approximately tracks a critically damped trajectory with a settling time, Ts, of 0.4 seconds.

Body-Conclusion

- Identify the main findings and achievement of the study, what new questions are raised by your research, and what new ways of doing things can result from your research
- Conclusions (结论)
- Summary (总结)
- Summary and conclusions (概括及总结)
- Concluding remarks (总结)
- Final remarks (总结)
- Conclusions and future work

In this paper we study the problem of designing dynamically feasible trajectories and controllers that drive a quadrotor to a desired state in state space. We focus on the development of a family of trajectories defined as a sequence of segments, each with a simple controller parameterized by a few gains and a goal state. Each controller is developed from the dynamic model of the robot, but is deliberately kept simple with a relatively few parameters to permit iterative refinement through successive experimental trials. These iterations allow us to account for the inevitable errors in the dynamic model and limitations of the actuators and sensors. Four scenarios are tested experimentally as considered by nine case studies with fifteen trials of each case study. The scenarios include flying through narrow, vertical and horizontal openings and perching on an inverted surface. We show that our approach results in repeatable and precise control along trajectories that demand velocities and accelerations that approach the limits of the vehicle's capabilities.

Our future work is directed toward planning for dynamically feasible trajectories that require more switches of controllers than the number shown here .We believe that by representing families of trajectories by specialized controllers the high-dimensionality of the planning problem may be reduced and so we are actively pursuing this area of research. We are also pursuing the extension of our approach to external disturbances such as a gust of wind. Preliminary results in this direction are forthcoming (Mellinger et al. 2011). Finally, we are interested in considering more advanced methods for optimizing and adapting the trajectory parameterizations to deal with differences between the analytic model and reality.

Body-Acknowledgment

- The author thanks whom for what reason.

- The author is very grateful to the National Natural Science Foundation of China for the support.
- The authors also thank the reviewers for the helpful comments.

Body-Reference

- Your in-text citations and this list has to be consistent as to style, whether Harvard, APA, MLA or Chicago.

- Jun X U, Wang M S, Dai J S, et al. The Design of Control System for Formation Flight of Quadrotor UAV[J]. Machinery Design & Manufacture, 2018. (GB/T 7714)
- Jun, X. U., et al. "The Design of Control System for Formation Flight of Quadrotor UAV." *Machinery Design & Manufacture* (2018). (MLA)
- Jun, X. U., Wang, M. S., Dai, J. S., & Wang, D. P. (2018). The design of control system for formation flight of quadrotor uav. Machinery Design & Manufacture. (APA)

Body-Appendix

- The material in the appendix may be subdivided according to the logical classifications. List each appendix by letter and title in the table of contents.

练习（10分）

- 根据你所参与过的项目，为你的项目写一个学术论文写作大纲
- 写作大纲应包含必要的结构
- 每个内容用一两句话大致介绍写什么内容

Example：

Title: nonlinear control for Quadrotor based on RBF
Abstract: 1、XXXXX 2、XXXX
keywords: None
Introduction : 1、brief introduction of Quadrotor
2、background about Quadrotor control
3、XXXXX
Xxx:
XXX:

下节课准备工作

- Help documents of Matlab toolbox
- Datasheet and user manual
- 期末测评内容