研究生院英语教改试点

研究生学位课

航空航天学术英语

Academic English for Aerospace Graduates

Lecture VI

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Last Week Homework

❶ Read 2 academic papers and/or presentation file , give your comments/suggestion and/or think about what you should prepare if you are invited to give a present in a conference.

❷ Prepare a PowerPoint file of your research topic and practice presentation before next class.

- Assign 4 students from different disciplines to present and 6 students to question

- A video camera will record everyone's presentation and replay it on class with a Q & A process.

5. Academic Presentation

  ➤ **PowerPoint Skills**

  ➤ **Presenting and Q&A Skills**

6. Introduction of Research Paper

  ➤ **Purpose of Introduction**

  ➤ **Key Elements of Introduction**

  ➤ **Basic Sentence Patterns**

7. Literature Review

  ➤ **Introduction Appreciation**

  ➤ **Intensive Reading & Extensive Reading**

8. Citation & Plagiarism

  ➤ **Right Citation**

  ➤ **Avoiding Plagiarism**

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Wk6~9

Structure of Research Papers

- Title
- Abstract & Key words
- Introduction
- Methods
- Results
- Discussion & Conclusions
- References

Purpose of Introduction

The authors need to show that

- **Background , history of literature and relevant main progress** in this field;

- There are some **research questions have not been answered**;

- Their studies are **relevant & significant** and have some **new contributions**.

Purpose of Introduction (cont.)

- **Move 1: Establishing a research territory**
  - showing the general research area is important
  - reviewing previous research work in this area

- **Move 2: Identifying a gap**
  - indicating the gap or problem in previous research

- **Move 3: Filling the gap**
  - stating the nature & contribution of the present research
  - indicating the structure of the research paper

Key elements of Introduction

1. Explanation of the topic and/or background

2. Survey of literature

3. Identification of the gap

4. Statement of the aim of the study and proposed research method

5. Main findings and contribution / impacts

6. Outline of the structure of the paper

Example

1. **The topic and/or background**

(Page 1, left side, Paragraph 1)
WITH the rapid development of automation technologies, engineering plants have become increasingly susceptible to system/component malfunctions. Failure to take appropriate responses to even relatively minor defects can result in highly destructive events. Because of this, fault-tolerant control (FTC) systems that can ensure the safety of handicapped systems have attracted significant interest.

Example (cont.)

1. The topic and/or background (cont.)

(Page 1, left side, Paragraph 1, cont.)
FTC design methodologies can essentially be divided into either passive FTC or active FTC systems [1]–[3]. A passive FTC system is designed under both normal and faulty conditions. The principle involved is to synthesize a fixed controller to make the closed-loop system insensitive to the anticipated malfunctions. Thus, faults can be counteracted from a "passive" viewpoint. On the other hand, an active FTC system reconfigures the controller according to information provided by a fault detection and diagnosis (FDD) unit. The term "active" therefore reveals that the control reconfiguration is activated according to the diagnosed fault.

Example (cont.)

2. Survey of literature

(Page 1, right side, Paragraph 2)
Several research results in the literature are available to advance the development of FTC using fuzzy techniques. Fuzzy based FTC design approaches have been investigated for nonlinear stochastic systems [4], [5]…

(Page 1, right side, Paragraph 3)
Other studies have also examined fuzzy-based fault detection and accommodation, …

Example (cont.)

2. Survey of literature (cont.)

(Page 2, left side, Paragraph 2)
Moreover, with respect to aircraft, fuzzy-based FTC has become a central focus of research efforts. A fuzzy model reference learning control (FMRLC) approach is deployed to compensate for actuator failures in the absence of explicit knowledge about such failures [17]…

3. Identification of the gaps?

(Page 2, left part, Paragraph 3)
The studies mentioned previously have achieved various degrees of success in accommodating actuator failures. Nonetheless, several factors still need to be explicitly considered in FTC design, when aircraft actuator stuck failures are present. First, …

Example (cont.)

4. Statement of the aim of the study and/or proposed research method

(Page 2, right part, Paragraph 2)

In light of the preceding motivations, the problem of designing a fuzzy logic aided FTC effective against actuator stuck failures is addressed here, with particular efforts made to achieve finite-time fault accommodation, in spite of inaccurate actuator effectiveness indicators. To the best of the authors' knowledge, there are very few studies integrating both FLS and finite-time FTC in the literature.

Example   (cont.)

5. Main findings and contribution / impacts

(Page 2, right part, Paragraph 3)
The main contributions of this paper relative to others include three aspects.
1) FLSs are used to obtain the information of actuator faults in [19]. ..
2) Fuzzy-based FTC methods can guarantee the asymptotical stability of the closed-loop system in the event of actuator faults [9], [17]–[19]…
3) Most of the existing FTC techniques assume that…

6. Outline of the structure of the paper

(Page 3, left part, Paragraph 2)

The remainder of this paper is organized as follows. Preliminaries and a problem statement are provided in Section II. An active FTC scheme is proposed to overcome actuator jammed failures with infinite time in Section III, where the fuzzy logic aided FTC and the LSCA algorithms are also presented. Section IV assesses the performance of the proposed FTC system using simulations of a longitudinal model of a Boeing 747 aircraft. Finally, concluding remarks are drawn in Section V.

Basic Sentence Patterns

- Claiming Centrality in Opening Statement (Move 1)

- Citation and Tense in Literature Review (Move 1)

- Negative opening in identifying a gap (Move 2)

- Sentences in filling the gap (Move 3)

Basic Sentence Patterns (cont.)

◈ Claiming Centrality in Opening Statement (M1)

The increasing interest in high angle-of-attack aerodynamics has heightened the need for computational tools suitable to predict the flow field and aerodynamic coefficients in this regime.
Of particular interest and complexity are the symmetric and asymmetric separated vortex flows which develop about slender bodies as the angle of attack is increased (Almosnino, 1985)

Basic Sentence Patterns (cont.)

Examples of opening statements.

(using present tense & present perfect tense)

- Recently, there has been growing interest in …

- The possibility of … has generated wide interest in …

- The development of … is a classic problem in …

- The … has become a favorite topic for analysis…

Basic Sentence Patterns (cont.)

Examples of opening statements. (cont.)

- Many investigators have recently turned to …

- A central issue in … is …

- The … has been extensively studied in recent years …

- Many recent studies have focused on …

Basic Sentence Patterns (cont.)

◎ Citation and tense in literature review (M1)

Three main patterns:

1) simple past tense – reference to single study

   The problem was investigated by Jones (1997).

2) present perfect tense – reference to areas of inquiry

   Several researchers [1,2] have studied the problem.

3) simple present tense - reference to state of current knowledge

   The problem appears to have a complex set of causes [1,2].

   1,2) what previous did; 3) what has been found.

Basic Sentence Patterns (cont.)

◉ Citation and tense in literature review (M1)

Examples:

- Jones (1997) concluded that …

- According to Jones (1997), the cause of … are closely related to ….

- Jones (1997) found that … was correlated most closely with …

- Jones (1997) has concluded that …

Basic Sentence Patterns (cont.)

⚛ Negative opening in identifying a gap (M2)

Move1 – What has been done?
Move2 – Establish the motivation for the study.
Move3 – What the present research is about?

M2: Establishing a niche by indicating the gap
- **showing that the research story so far is not yet completed.**

- **Usually, negative subjects are chosen.**

Basic Sentence Patterns (cont.)

- Negative opening in identifying a gap (M2)

Examples（negative statement）

- However, little information …
- Little work … None
- However, few studies …
- There is little research …
- None of these studies …
- Although considerable studies … , rather less attention has been paid to …
- However, it remains unclear that …

Basic Sentence Patterns (cont.)

⊛ Negative opening in identifying a gap (M2)

Examples: (extending previous knowledge)

- These recent developments clearly have considerable potential. In this paper, we demonstrate …

- Such active-R network eliminate the need for any external ….. This paper utilizes the active-R approach for the design of …

- The literature shows that Rasch Analysis is a useful …. This paper use that Rasch Analysis to …

Basic Sentence Patterns (cont.)

⬡ Sentences in filling the gap (M3)

The **Final Step** in the typical Introduction part is to fill the gap (or extend previous works)

There are two main types:

1) Purposive - indicate their main purpose.

2) Descriptive - describe their main feature.

Basic Sentence Patterns (cont.)

⊛ Sentences in filling the gap (M3)

Examples:

- In this paper, we give preliminary result for …

- The study was designed to evaluate …

- The present work extends the use of the last model by…

- The primary focus of this paper is on …

- Our primary objective in this paper is to provide …

Homework

❶ Find 2-3 research papers from your own field, analyze the structure & sentences of introduction part.

❷ Explain Introduction of your research paper in 5 mins on next class

- Assign 4 students from different disciplines to present and 6 students to question

- A video camera will record everyone's presentation and replay it on class with a Q & A process.