杭州電子科技大学

硕 士 学 位 论 文

题 目：语音交互 AI 在痴呆症护理中的适应性研究

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ADAPTIVE RESEARCH ON VOICE INTERACTION AI IN DEMENTIA CARE

BY

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THESIS

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摘　　要

随着全球人口老龄化的加剧，痴呆症患者的数量正在快速增加，对长期护理和医疗资源提出了严峻的挑战。语音交互 AI 技术，尤其是智能对话系统，因其自然、便捷的沟通方式，正在成为痴呆症护理领域的研究热点。本研究探讨了语音交互 AI 在痴呆症患者护理中的适应性问题，重点分析其在个性化照护、情感识别、记忆辅助等方面的潜力。通过实验和用户反馈数据，本文评估了现有语音交互 AI 系统的有效性与局限性，提出了改善其在实际应用中表现的策略。研究结果表明，优化后的语音交互 AI 系统可以显著提高痴呆症患者的生活质量，并为痴呆症护理提供更加智能化的解决方案。

关键词：痴呆症，语音交互，人工智能

ABSTRACT

With the global aging population on the rise, the number of dementia patients is increasing rapidly, posing significant challenges to long-term care and medical resources. Voice interaction AI technology, especially intelligent conversational systems, is gaining attention in dementia care due to its natural and convenient communication methods. This study explores the adaptability of voice interaction AI in dementia care, focusing on its potential in personalized care, emotional recognition, and memory assistance. Through experiments and user feedback data, the effectiveness and limitations of current voice interaction AI systems are evaluated, and strategies for improving their real-world performance are proposed. The findings suggest that optimized voice interaction AI systems can significantly enhance the quality of life for dementia patients, providing more intelligent solutions for dementia care.

Keywords: dementia; voice interaction; AI

Contents

Chapter 1 Introduction

1.1 Research Background

With the global aging population on the rise, the number of dementia patients is increasing rapidly, posing significant challenges to long-term care and medical resources. Voice interaction AI technology, especially intelligent conversational systems, is gaining attention in dementia care due to its natural and convenient communication methods. This study explores the adaptability of voice interaction AI in dementia care, focusing on its potential in personalized care, emotional recognition, and memory assistance. Through experiments and user feedback data, the effectiveness and limitations of current voice interaction AI systems are evaluated, and strategies for improving their real-world performance are proposed. The findings suggest that optimized voice interaction AI systems can significantly enhance the quality of life for dementia patients, providing more intelligent solutions for dementia care. [1, 2]

1.2 Related Works

1.2.1 Related Works of Healthcare

1.2.2 Related Works of AI Technology

1.3 Chapter Organization

The research content and organizational structure of this thesis are as follows:

Chapter 1: Introduction. This chapter ...

Chapter 2: Relevant Technical and Related Research. This chapter ...

Chapter 3: Main Contents. This chapter ...

Chapter 4: Experiment Result. This chapter ...

Chapter 5: Conclusions and Future Works. This chapter ...

Chapter 2 Relevant Technical and Related Research

2.1 Introduction

2.2 Chapter Summary

Chapter 3 Main Contents

3.1 Introduction

3.2 Chapter Summary

Chapter 4 Experiment Result

4.1 Introduction

4.2 Chapter Summary

Chapter 5 Conclusions and Future Works

5.1 Conclusions

5.2 Future Works

Acknowledgments

References

[1] Hochreiter S, Schmidhuber J. Long Short-Term Memory[J]. Neural computation, 1997, 9 (8): 1735-1780.

[2] Kaplan J, McCandlish S, Henighan T, et al. Scaling Laws for Neural Language Models: arXiv:2001.08361[M]. arXiv, 2020.

Appendix

1. Accepted Papers

[1] San Zhang , Si Li , Wu Wang .Adaptive Research on Voice Interaction AI in Dementia Care[C], 2023 （第一作者，已投稿）

2. Intellectual Properties

[1] 发明专利：张三，李四，王五，语音交互 AI 在痴呆症护理中的适应性研究（专利编号: 2023101352792）