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**中国科学院大学**  
University of Chinese Academy of Sciences

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In partial fulfillment of the requirement  
For the degree of  
Doctor of Engineering

Your institute, Chinese Academy of Sciences

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## 摘 要

机器人在焊接行业已经使用了几十年。然而，大多数的焊接机器人仅仅应用于简单的焊缝类型，如薄板的对接焊缝。

**关键词：** 中厚板焊缝，焊缝跟踪控制





## **Abstract**

Robots have been employed in the welding industry for many decades. However, most of the welding robots are used for weld seams with simple shape such as butt seams in thin plates.

**Keywords:** Visual sensing calibration, Weld seam feature detection, Weld seam tracking control



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# Chapter 1

## Introduction

### 1.1 Background of the Study

This is an example of citation [1].

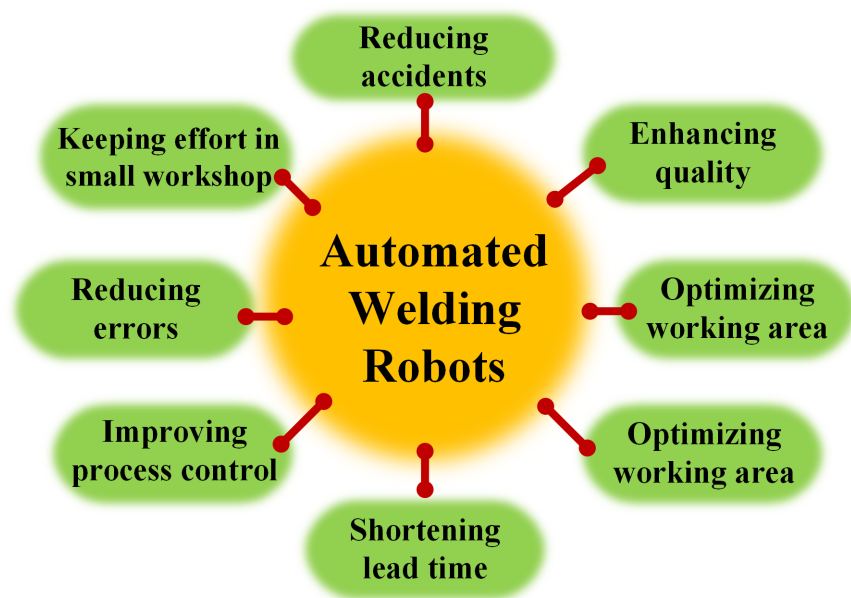


Figure 1-1 The advantages of the automated welding robots



## Chapter 2

## Chapter 2

### 2.1 Introduction





## Chapter 3

## Chapter3

### 3.1 Introduction



## Chapter 4

## Chapter 4

### 4.1 Introduction



## Chapter 5

## Chapter 5

### 5.1 Introduction



## Chapter 6

## Chapter 6

### 6.1 Conclusion





## Appendix A

### Appendix 1



Appendix B

Appendix 2



## Bibliography

- [1] G. K. Fricke, *Localization, Tracking, and Odometry Calibration of a Multi-Agent Swarm System*. PhD thesis, Durham, North Carolina: Department of Mechanical Engineering and Materials Science, Duke University, 2009.



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## 致谢

Prasarn Kiddee  
Institute of xxxxx, UCAS  
April, 2017



## Brief biography and publications

### Brief biography

xxx xxx was born on ..... He received the bachelor degree In 200x, he obtained the master degree of Since November 201x, he has joined the Institute of ....., Chinese Academy of Sciences(IACAS), Beijing, China as a Ph.D. student. His current research interests include.....

### Journal Publications

- [1] **xxxx xxxx**, xxxx xxxx, xxxx xxxx, ‘Title’ *Name of Journal*, Vol.xx (x), pp.xxx-xxx, 201x. (**SCI, EI indexed**)

**Conference Publications**

- [1] **xxxx xxxx**, xxxx xxxx, xxxx xxxx, “Title” *Name of Journal*, Vol.xx (x), pp.xxx-xxx, 201x. **(SCI, EI indexed)**

**Under reviewed papers**

- [1] **xxxx xxxx**, xxxx xxxx, xxxx xxxx, “Title” *Name of Journal*, Vol.xx (x), pp.xxx-xxx, 201x. **(SCI, EI indexed)**

**Awards**

- [1] 2014 Best Paper of .....

**Contribution**

- [1] A reviewer of .....**(SCI, EI indexed)**