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# Speech Recognition

- With Information Retrieval & Command Prompt -

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Project Report  
ED5-1-E17

Aalborg University  
Electronics and IT

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**Electronics and IT**  
Aalborg University  
<http://www.aau.dk>

## **AALBORG UNIVERSITY**

### STUDENT REPORT

**Title:**

Speech Recognition

**Theme:**

Scientific Theme

**Project Period:**

Fall Semester 2017

**Project Group:**

ED5-1-E17

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**Abstract:**

This report goes into detail about the implementation of distributed speech recognition systems, information retrieval and machine learning. The main objective of the speech recognition system is to provide a handsfree human-computer interface experience, where the system is also able to handle noise.

*The content of this report is freely available, but publication (with reference) may only be pursued due to agreement with the author.*





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# Todo list

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# Preface

The project entitled Speech Recognition with Focus on information retrieval and command prompt was made by three students from the Electronics and Computer Engineering programme at Aalborg University Esbjerg, for the P5 project during the fifth semester.

Aalborg University, October 4, 2017

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# Chapter 1

## Introduction

Here is the introduction. The next chapter is chapter 1.  
a new paragraph

### 1.1 Examples

You can also have examples in your document such as in example 1.1.

#### **Example 1.1 (An Example of an Example)**

Here is an example with some math

$$0 = \exp(i\pi) + 1 . \tag{1.1}$$

You can adjust the colour and the line width in the `macros.tex` file.

### 1.2 How Does Sections, Subsections, and Subsections Look?

Well, like this

#### **1.2.1 This is a Subsection**

and this

#### **This is a Subsubsection**

and this.

**A Paragraph** You can also use paragraph titles which look like this.

**A Subparagraph** Moreover, you can also use subparagraph titles which look like this. They have a small indentation as opposed to the paragraph titles.

Is it possible to add a subsubparagraph?

I think that a summary of this exciting chapter should be added.

## Chapter 2

# Problem Description

### 2.1 Problem Description

List to write about here:

- Main Objective/Goal
- What will be required
- How are we going to solve the Objective?

### 2.2 Problem Delimitation

To ensure that the project meets the desired scope, specific success criteria are formed which will be evaluated during the final stages of the report. The following list of requirements are the desired success criteria, where the focus will be on reaching the given goals.

- Create a network infrastructure for Client/Server Model
- Identify the system parameters (speech)
- Design a filter
- Detect and identify human speech
- Implement a speech recognition system with information retrieval

Brief summary on how are we going to obtain all of these bullet points.



## **Chapter 3**

# **Distributed speech recognizer**

### **3.1 The DSR system**

### **3.2 Acoustic models**

### **3.3 Language model**





## **Chapter 4**

# **Knowledge-based IR system**

**4.1 The document retrieval system**

**4.2 The question answering system**



## **Chapter 5**

# **Machine Learning**

### **5.1 Deep Learning**

### **5.2 Recurrent Neural Network**



## **Chapter 6**

# **Discussion**



## Chapter 7

# Conclusion

In case you have questions, comments, suggestions or have found a bug, please do not hesitate to contact me. You can find my contact details below.

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## **Appendix A**

### **Appendix A name**

Here is the first appendix