



## **Project Work**

### **HS17 Degree: Computer Science**

# Techniques for ML-Assisted Language Translation

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# Abstract

This is just some normal text that goes here

# Preface

thank-yous go here

## DECLARATION OF ORIGINALITY

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# 1. Introduction

- machines becoming better at processing human language (accuracy)
- conversation with machines are possible to a limited degree
- information retrieval through voice recognition still a challenge due to
  - attention to correct words
  - database structures
  - multiple ways to ask for identical information
- multiple solutions proposed
  - KBQA: Learning Question Answering over QA Corpora and Knowledge Bases
  - Eric, Manning - 2017 - Key-Value Retrieval Networks for Task-Oriented Dialogue - With Highlights
- Asking your Assistant (Google, Siri or S-Voice) weather you have an appointment tomorrow and ask follow-up questions about this appointment is currently not possible (due to above challenges but could be if these papers prove implementable)

## 1.1. Initial Position

- No Response from KBQA for Code
- Refusal to share code from Manning
- Ultimate new goal: Implement Manning's solution without his code

## 1.2. Task

- Small Steps
  - implement seq2seq network for translation
    - \* implement char-based
    - \* implement word-based
    - \* try multiple different implementations (reversed-input, multiple LSTMs) and compare against each other
    - \* get decent results on both and move on
  - implement seq2seq with attention
    - \* attempt various attention mechanism
- One Large Step
  - map best working models and tools to KBQA and get better results than Stanford
  - Rub better results in Eric's face.
  - Profit.

## 2. Theoretical Principles

Test this one here too, please

```
1 int getRandomNumber()  
2 {  
3     return 4; // chosen by fair dice roll.  
4               // guaranteed to be random.  
5 }
```

### 2.1. Definitions

- Hypothesis
- Reference

### 2.2. Recurrent Neural Networks

- Standard Neural Networks
- Recurrent Neural Networks
  - Problems
  - Solutions

### 2.3. Seq2Seq

- encoder
- decoder

### 2.4. Attention

- test

### 2.5. Performance Evaluation

- test

### 3. Method



## 4. Results

## 5. Discussion and Prospects

Wie in (? , Kapitel 2, Seite 215) nachzulesen, gibt es sogenannte Gleichungen.  $\Omega$

## 6. Index

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## 6.1. Glossary

This document is incomplete. The external file associated with the glossary ‘main’ (which should be called `zhawDocument.gls`) hasn’t been created.

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- Run the external (Lua) application:  
`makeglossaries-lite.lua "zhawDocument"`
- Run the external (Perl) application:  
`makeglossaries "zhawDocument"`

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## **6.2. List of Figures**

## **6.3. List of Tabels**

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## 6.4. Listingverzeichnis

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## 6.5. Symbol Glossary

$\Omega$  unit of electrical resistance 10



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## 6.6. Acronym Glossary

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[title=Index]

# **A. Appendix**

## **A.1. Projektmanagement**

## **A.2. Final Words**