### INSTITUT FÜR INFORMATIK

Machine Learning

Universitätsstr. 1 D–40225 Düsseldorf



# **Chatbots with Deep Learning**

#### Renato Vukovic

#### Bachelorarbeit

Beginn der Arbeit: 01. August 2018 Abgabe der Arbeit: 31. Oktober 2018

Gutachter: Prof. Dr. Stefan Harmeling

Julius Ramakers

Erklärung		
Hiermit versichere ich, dass ich diese Bachelora habe dazu keine anderen als die angegebenen Qu	arbeit selbstständig verfasst habe. uellen und Hilfsmittel verwendet.	Ich
Düsseldorf, den 31. Oktober 2018		
	Renato Vukovic	

#### **Abstract**

Deep learning methods are becoming more and more popular in solving problems of artificial intelligence. Different deep learning approaches for chatbots and their advantages and disadvantages respecitively are discussed in this bachelor thesis.

*CONTENTS* i

#### **Contents**

1	Intro	oduction	1
2	Wei	teres Kapitel	2
	2.1	Unterkapitel	2
	2.2	Unterkapitel	2
Li	st of l	Figures	3
Li	st of T	Tables	3

1 INTRODUCTION 1

#### 1 Introduction

QANet is a state of the art neural network for solving the question answering problem with a single which does not use any recurrent neural nets(RNN) as most of the other state of the art approaches. As RNNs take a lot of time to train this is a advantage in performance. I am trying to use this new architecture in a chatbot where state of the art models use RNNs to see what performance improvement is reached by this.

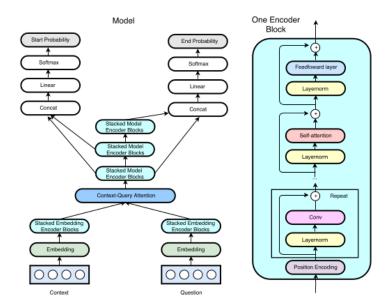


Figure 1: An overview of the QANet architecture

- 2 Weiteres Kapitel
- 2.1 Unterkapitel
- 2.2 Unterkapitel

## **List of Figures**

1	An overview of the QANet architecture	1
T	All overview of the QAINET architecture	 1

### **List of Tables**