FACULTY OF MATHEMATICS AND PHYSICS
Charles University

ABSTRACT OF DOCTORAL THESIS

Jindřich Helcl

Non-Autoregressive Neural Machine Translation

Institute of Formal and Applied Linguistics

Supervisor:	prof. RNDr. Jan Hajič, Dr.
Study programme:	Computer Science
Study branch:	Mathematical Linguistics

Prague 2021

The results of this thesis were achieved in the period of a doctoral study at the Faculty of Mathematics and Physics, Charles University in years 2013–2019.

The thesis defence will take place on June 13, 2019 at 10:10 a.m. in front of a committee for thesis defences in the branch Mathematical Linguistics at the Faculty of Mathematics and Physics, Charles University, Malostranské nám. 25, Prague 1, room S1.

The thesis can be viewed at the Study Department of Doctoral Studies of the Faculty of Mathematics and Physics, Charles University, Ke Karlovu 3, Prague 2.

This abstract was distributed on May 23, 2019.

MATEMATICKO-FYZIKÁLNÍ
FAKULTA
Univerzita Karlova

AUTOREFERÁT DISERTAČNÍ PRÁCE

Jindřich Helcl

Neautoregresivní neuronový strojový překlad

Ústav formální a aplikované lingvistiky

Praha 2021

Disertační práce byla vypracována na základě výsledků získaných během doktorského studia na Matematicko-fyzikální fakultě Univerzity Karlovy v letech 2013–2019.

Doktorand:	Mgr. Jindřich Helcl
Školitel:	prof. RNDr. Jan Hajič, Dr. Ústav formální a aplikované lingvistiky Matematicko-fyzikální fakulta Univerzita Karlova Malostranské nám. 25, 118 00 Praha 1
Školicí pracoviště:	Ústav formální a aplikované lingvistiky Matematicko-fyzikální fakulta Univerzita Karlova Malostranské nám. 25, 118 00 Praha 1
Oponenti:	prof. Lucia Specia, Ph.D. Department of Computing Faculty of Engineering Imperial College London 180 Queen's Gate, South Kensington, Londýn, Spojené království
	Ing. Jan Čech, Ph.D. Katedra kybernetiky Fakulta elektrotechnická České vysoké učení technické Karlovo naměstí 13, 121 35 Praha 2

Obhajoba disertační práce se koná dne 13. června 2019 v 10:10 před komisí pro obhajoby disertačních prací v oboru Matematická lingvistika na Matematicko-fyzikální fakultě UK, Malostranské nám. 25, Praha 1, v místnosti S1.

Předseda RDSO:	doc. Ing. Zdeněk Žabokrtský, Ph.D. Ústav formální a aplikované lingvistiky Matematicko-fyzikální fakulta Univerzita Karlova Malostranské nám. 25, 118 00 Praha 1

S disertační prací je možno se seznámit na studijním oddělení Matematicko-fyzikální fakulty UK, Ke Karlovu 3, Praha 2.

Autoreferát byl rozeslán dne 23. května 2018.

Contents

1. Introduction

JH: *ahoj*

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HELCL, J. – LIBOVICKÝ, J. – KOCMI, T. – MUSIL, T. – CÍFKA, O. – VARIŠ, D. – BOJAR, O. Neural Monkey: The Current State and Beyond. In *Proceedings of the 13th Conference of the Association for Machine Translation in the Americas (Volume 1: Research Track)*, p. 168–176, Boston, MA, March 2018. Association for Machine Translation in the Americas. Available at: `https://aclanthology.org/W18-1816`.

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List of Publications

HELCL, J. – LIBOVICKÝ, J. Neural Monkey: An Open-source Tool for Sequence Learning. *The Prague Bulletin of Mathematical Linguistics.* Apr 2017, 107, 1, p. 5–17. ISSN 0032-6585. 54 citations.

LIBOVICKÝ, J. – HELCL, J. Attention Strategies for Multi-Source Sequence-to-Sequence Learning. In *Proceedings of the 55th Annual Meeting of the Association for Computational Linguistics (Volume 2: Short Papers)*, p. 196–202, Vancouver, Canada, July 2017. Association for Computational Linguistics. doi: 10.18653/v1/P17-2031. Available at: `https://aclanthology.org/P17-2031`. 140 citations.

MICELI BARONE, A. V. – HELCL, J. – SENNRICH, R. – HADDOW, B. – BIRCH, A. Deep architectures for Neural Machine Translation. In *Proceedings of the Second Conference on Machine Translation*, p. 99–107, Copenhagen, Denmark, September 2017. Association for Computational Linguistics. doi: 10.18653/v1/W17-4710. Available at: `https://aclanthology.org/W17-4710`. 80 citations.

HELCL, J. – LIBOVICKÝ, J. – KOCMI, T. – MUSIL, T. – CÍFKA, O. – VARIŠ, D. – BOJAR, O. Neural Monkey: The Current State and Beyond. In *Proceedings of the 13th Conference of the Association for Machine Translation in the Americas (Volume 1: Research Track)*, p. 168–176, Boston, MA, March 2018. Association for Machine Translation in the Americas. Available at: `https://aclanthology.org/W18-1816` 7 citations.

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LIBOVICKÝ, J. – HELCL, J. End-to-End Non-Autoregressive Neural Machine Translation with Connectionist Temporal Classification. In *Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing*, p. 3016–3021, Brussels, Belgium, October-November 2018. Association for Computational Linguistics. doi: 10.18653/v1/D18-1336. Available at: `https://aclanthology.org/D18-1336`. 67 citations.

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Only publications relevant to this thesis are included. The number of citations was computed using Google Scholar. Total number of citations of publications related to the topic of the thesis (without self-citations): 391