MILOŠ STANOJEVIĆ

RESEARCH INTERESTS

- Parsing with context-sensitive grammars (MCFG, Minimalist Grammars, CCG)
- Transition-Based Parsing
- Deep Neural Models
- Machine Translation
- Unsupervised Grammar Induction

EDUCATION

February 2013 - December 2017

Ph.D. candidate at the University of Amsterdam, ILLC

Topic: **Modeling Reordering in Machine Translation with Permutation Factorizations**

Supervised by Prof. Dr. Khalil Sima'an and Dr. Wilker F. Aziz

In my thesis I investigate representations of reordering in machine translation based on factorization of permutations. Reordering between two strings can be treated as a permutation that needs to be applied on the first string to get the order of the second string. Unlike previous approaches, in my work I explore the inner structure of permutations. Namely, all permutations can be decomposed into smaller *prime permutations* that form a hierarchical tree structure representing the original permutation. By decomposing permutations into tree structures, a more (i) compositional, (ii) hierarchical and (iii) data driven approach can be pursued in which existing robust parsing and machine learning algorithms can be applied to construct better reordering models (EMNLP 2015) and better evaluation metrics (EMNLP 2014, COLING 2016, ACL 2017).

October 2010 - February 2013

European Masters in Language and Communication Technology
2011-2012 Charles University in Prague (2nd year)
2010-2011 University of Malta (1st year)

M.Sc. Thesis: Large-Scale Discriminative Training for Machine Translation into Morphologically-Rich Languages

Supervised by Dr. Ondřej Bojar

October 2006 - August 2010

B.Sc. in Electrical Engineering
Study group - Computer Science and Informatics
Faculty of Electronic Engineering, University of Niš, Serbia
Thesis: Optimization of programs created in Scala programming language

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Selected Publications

EMNLP 2017	**Neural Discontinuous Constituency Parsing** Conference on Empirical Methods in Natural Language Processing **Miloš Stanojević** and Raquel G. Alhama
ACL 2017	**Alternative Objective Functions for Training MT Evaluation Metrics** Association for Computational Linguistics **Miloš Stanojević** and Khalil Sima'an
LACL 2016	**Minimalist Grammar Transition-Based Parsing** Logical Aspects of Computational Linguistics **Miloš Stanojević**
COLING 2016	**Hierarchical Permutation Complexity for Word Order Evaluation** International Conference on Computational Linguistics **Miloš Stanojević** and Khalil Sima'an
COLING 2016	**Universal Reordering via Linguistic Typology** International Conference on Computational Linguistics Joachim Daiber, **Miloš Stanojević** and Khalil Sima'an
WMT 2016	**Examining the Relationship between Preordering and Word Order Freedom in Machine Translation** First Conference on Machine Translation Joachim Daiber, **Miloš Stanojević**, Wilker Aziz and Khalil Sima'an
EMNLP 2015	**Reordering Grammar Induction** Conference on Empirical Methods in Natural Language Processing **Miloš Stanojević** and Khalil Sima'an
PBML 2015	**Evaluating MT systems with BEER** The Prague Bulletin of Mathematical Linguistics **Miloš Stanojević** and Khalil Sima'an
SSST 2014	**Evaluating Word Order Recursively over Permutation-Forests** Workshop on Syntax, Semantics and Structure in Statistical Translation **Miloš Stanojević** and Khalil Sima'an
EMNLP 2014	**Fitting Sentence Level Translation Evaluation with Many Dense Features** Conference on Empirical Methods in Natural Language Processing **Miloš Stanojević** and Khalil Sima'an

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System Description Publications and Participation in Shared Tasks

WMT 2016	BEER 2.0 evaluation metric (no system description paper)	**1st place** in metrics task both on corpus and sentence level
WMT 2015	**BEER 1.1: ILLC UvA submissionto metrics and tuning task** **Miloš Stanojević** and Khalil Sima'an	**2nd place** on tuning task **1st place** on metrics task for sentence and corpus level
WMT 2014	**BEER: BEtter Evaluation as Ranking** **Miloš Stanojević** and Khalil Sima'an	**1st place** on metrics task for sentence level evaluation
WMT 2012	**Selecting data for English-to-Czech machine translation** Aleš Tamchyna, Petra Galuščáková, Amir Kamran, **Miloš Stanojević** and Ondřej Bojar	

Organization of the Shared Tasks

WMT 2016	**Organization of the shared Metrics task** **Results of the WMT16 Metrics Shared Task** Ondřej Bojar, Yvette Graham, Amir Kamran and **Miloš Stanojević**
WMT 2016	**Organization of the shared Tuning task** **Results of the WMT16 Tuning Shared Task** Bushra Jawaid, Amir Kamran, **Miloš Stanojević** and Ondřej Bojar
WMT 2015	**Organization of the shared Metrics task** **Results of the WMT15 Metrics Shared Task** **Miloš Stanojević**, Amir Kamran, Philipp Koehn and Ondřej Bojar
WMT 2015	**Organization of the shared Tuning task** **Results of the WMT15 Tuning Shared Task** **Miloš Stanojević**, Amir Kamran and Ondřej Bojar

Released Software

BEER	Trained MT metric with high correlation with human judgment. https://github.com/stanojevic/beer
BadParser	Transition-based neural discontinuous constituency parser https://github.com/stanojevic/BadParser
Reordering Grammar	Unsupervised synchronous grammar induction from parallel data for better word order prediction in machine translation. https://github.com/stanojevic/ReorderingGrammar

Reviewing

EMNLP 2015, 6, 7	Reviewed for **the parsing track of EMNLP**
ACL 2016, 7	Reviewed for **the demo session of ACL**
DMTW 2015	Reviewed for **Deep Machine Translation Workshop in Prague**

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Scholarships

2010 - 2012	**Erasmus Mundus scholarship**
2004 - 2010	**Scholarship from the Ministry of Science and Technological Development of the Republic of Serbia** awarded for taking part in international mathematical competitions
2002 - 2004	**Scholarship from the Ministry of Education of the Republic of Serbia** awarded for taking part in international mathematical competitions

Work Experience

July - Oct 2017	**Internship at Nuance** with Prof. Edward Stabler in Nautral Language and AI group, Sunnyvale
2013 - 2017	**Researcher at University of Amsterdam** Institute for Logic, Language and Computation
Sept - Oct 2008	**Internship at Troxo DOO** Development office in Niš, Serbia

Summer Schools

Sept 2015	**European Summer School in Logic, Language and Information (ESSLLI)** Barcelona, Spain
Jan 2015	**LOT Winter School** Amsterdam, Netherlands
Aug 2013	**European Summer School in Logic, Language and Information (ESSLLI)** Düsseldorf, Germany
July 2013	**Lisbon Machine Learning Summer School** Lisbon, Portugal

Languages

Serbo-Croatian: Native Language
English: Fluent
Russian: Beginner

Programming Tools

Programming Languages: Scala (advanced), Java (advanced), Perl (advanced), Python (advanced), C++ (intermediate), Bash (intermediate), Haskell (basic)

Deep Learning Toolkits: DyNet and TensorFlow

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