

MILOŠ STANOJEVIĆ

POSTDOC AT UNIVERSITY OF EDINBURGH

RESEARCH INTERESTS

- Incremental syntactic parsing
- Mildly Context-Sensitive grammar formalisms (CCG, MCFG, Minimalist Grammars)
- Probabilistic Modeling of Natural Language
- Unsupervised Grammar Induction
- Machine Translation
- Formal Linguistic Universals

EDUCATION

February 2013 - December 2017 **Ph.D at the University of Amsterdam, ILLC**
Thesis topic: [Permutation Forests for Modeling Word Order in Machine Translation](#)

Supervisors: Prof. Dr. Khalil Sima'an and Dr. Wilker F. Aziz

Summary: In the thesis I explore representation of MT reordering patterns that are based on recursive factorization of permutations. This recursive process in effect forms a tree-like description of relations between paired sentences. In the first part of the thesis I induce a latent grammar that generates these trees and use it to improve reordering in MT systems (EMNLP 2015, WMT 2016). In the second part I apply these hierarchical structures in designing a better metric for evaluation of word order aspect alone (COLING 2016) and evaluation of all the aspects together by training for high correlation with human judgment on the sentence level (EMNLP 2014) and corpus level (ACL 2017). The automatically learned metric has proved to have on average the highest correlation with human judgment over four consecutive years of WMT shared metrics task (WMT 2014, 15, 16, 17).

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*
Supervisor : Dr. Ondřej Bojar

October 2006 - August 2010 **B.Sc. in Electrical Engineering**
Study group - Computer Science and Informatics
University of Niš, Serbia
Thesis: *Optimization of programs created in Scala programming language*

WORK EXPERIENCE

- Nov 2017 - **PostDoc at University of Edinburgh**
with Prof. Mark Steedman
Institute for Logic, Language and Computation
- July - Oct 2017 **Internship at Nuance**
with Prof. Edward Stabler
Natural Language and AI group, Sunnyvale, California
- Feb 2013 – July 2017 **Researcher at University of Amsterdam**
with Prof. Khalil Sima'an
Institute for Logic, Language and Computation

SELECTED PUBLICATIONS

- EMNLP 2019** [Addressing Biases in Incremental CCG Parsing](#)
(under submission) *Conference on Empirical Methods in Natural Language Processing*
Miloš Stanojević and Mark Steedman
- CL journal 2019** [Formal Basis of a Language Universal](#)
(under submission) *Computational Linguistics journal*
Miloš Stanojević and Mark Steedman
- ACL 2019** [Wide-Coverage Neural A* Parsing for Minimalist Grammars](#)
Annual Meeting of the Association for Computational Linguistics
John Torr, **Miloš Stanojević**, Mark Steedman and Shay Cohen
- FG 2019** [On the Computational Complexity of Head Movement and Affix Hopping](#)
Conference on Formal Grammar
Miloš Stanojević
- NAACL 2019** [CCG Parsing Algorithm with Incremental Tree Rotation](#)
Conference of the North American Chapter of the Association for Computational Linguistics
Miloš Stanojević and Mark Steedman
- CMCL 2019** [The active-filler strategy in a move-eager left-corner Minimalist Grammar parser](#)
Workshop on Cognitive Modeling and Computational Linguistics
Tim Hunter, **Miloš Stanojević** and Edward Stabler
- CogACLL 2018** [A Sound and Complete Left-Corner Parsing for Minimalist Grammars](#)
Workshop on Cognitive Aspects of Computational Language Learning and Processing
Miloš Stanojević and Edward Stabler

- EMNLP 2017** [Neural Discontinuous Constituency Parsing](#)
Conference on Empirical Methods in Natural Language Processing
Miloš Stanojević and Raquel G. Alhama
- ACL 2017 short paper** [Alternative Objective Functions for Training MT Evaluation Metrics](#)
Annual Meeting of the 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](#)
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
- WMT 2014** [BEER: BEtter Evaluation as Ranking](#)
Workshop on Machine Translation
Miloš Stanojević and Khalil Sima'an
- EMNLP 2014 short paper** [Fitting Sentence Level Translation Evaluation with Many Dense Features](#)
Conference on Empirical Methods in Natural Language Processing
Miloš Stanojević and Khalil Sima'an

RELEASED SOFTWARE

RotatingCCG	Neural Incremental CCG parser with Beam Search Optimization https://github.com/stanojevic/Rotating-CCG
Move-Eager MG parser	Incremental Minimalist Grammar parser together with implementation of embedded miniKanren logic programming language interpreter https://github.com/stanojevic/Move-Eager-Left-Corner-MG-Parser
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
BEER	Trained MT metric with high correlation with human judgment. https://github.com/stanojevic/beer

CONTRIBUTIONS TO COMMUNITY

Reviewing for conferences:	ACL, NAACL, EMNLP, CoNLL
Reviewing for journals:	LREC, Machine Translation, Natural Language Engineering, Language Modeling
Organizing shared tasks:	WMT Metrics and Tuning tasks in 2015 and 2016

INVITED TALKS

<i>Nuance NL & AI lab</i> Sunnyvale, 2017	Reordering Grammar Induction
<i>Rich Parsing Workshop</i> Amsterdam, 2016	Minimalist Grammar Transition-Based Parsing
<i>MT Marathon</i> Prague, 2015	Discriminative Training for Statistical Machine Translation

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
