

MILOŠ STANOJEVIĆ

SENIOR RESEARCH SCIENTIST AT GOOGLE DEEPMIND

RESEARCH INTERESTS

- Syntactic Parsing
- Formal Language Universals
- Incremental Sentence Processing
- Unsupervised Learning
- Machine Translation

WORK EXPERIENCE

- Nov 2021 – now **Senior Research Scientist**
Google DeepMind
Language Team, London, UK
- Nov 2017 –
Oct 2021 **Research Associate**
University of Edinburgh
with Prof. Mark Steedman
School of Informatics, Edinburgh, UK
- July 2017 –
Oct 2017 **Internship**
Nuance Communications (now part of Microsoft)
with Prof. Edward Stabler
Natural Language and AI group, Sunnyvale, US

EDUCATION

- 2013 – 2017 **Ph.D. Natural Language Processing**
University of Amsterdam, Netherlands
topic: Permutation Forests for Modeling Word Order in MT
supervised by Prof. Khalil Sima'an and Dr. Wilker Aziz
- 2011 – 2013 **Mgr. Mathematical Linguistics**
Charles University in Prague, Czech Republic
- 2010 – 2011 **M.Sc. Human Language Science and Technology**
University of Malta, Malta
- 2006 – 2010 **B.Sc. Electrical Engineering**
University of Niš, Serbia
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PUBLICATIONS

- EMNLP System Demonstrations 2023** [SynJax: Structured Probability Distributions for JAX](#)
Empirical Methods in Natural Language Processing System Demonstration
Miloš Stanojević and Laurent Sartran
- Cognitive Science journal 2023** [Modeling structure-building in the brain with CCG parsing and large language models](#)
Cognitive Science — journal
Miloš Stanojević, Jonathan Brennan, Donald Dunagan, Mark Steedman, John Hale
- Neurobiology of Language journal 2023** [Neural correlates of long-distance dependencies in Chinese and English](#)
Neurobiology of Language — journal
Donald Dunagan, **Miloš Stanojević**, Maximin Coavoux, Shulin Zhang, Shohini Bhattachali, Jixing Li, Jonathan Brennan, John Hale
- EMNLP 2022** [Unbiased and Efficient Sampling of Dependency Trees](#)
Conference on Empirical Methods in Natural Language Processing
Miloš Stanojević
- TACL journal 2022** [Transformer Grammars: Augmenting Transformer Language Models with Syntactic Inductive Biases at Scale](#)
Transactions of the Association for Computational Linguistics — journal
Laurent Sartran, Samuel Barrett, Adhiguna Kuncoro, **Miloš Stanojević**, Phil Blunsom, Chris Dyer
- Computational Linguistics journal 2021** [Formal Basis of a Language Universal](#)
Computational Linguistics — journal
Miloš Stanojević and Mark Steedman
- EMNLP 2021** [A Root of a Problem: Optimizing Single-Root Dependency Parsing](#)
Conference on Empirical Methods in Natural Language Processing
Miloš Stanojević and Shay B. Cohen
- IWCS 2021** [Computing All Quantifier Scopes with CCG](#)
International Conference on Computational Semantics
Miloš Stanojević and Mark Steedman
- CMCL 2021** [Modeling incremental language comprehension in the brain with Combinatory Categorical Grammar](#)
Workshop on Cognitive Modeling and Computational Linguistics
Miloš Stanojević, Shohini Bhattachali, Donald Dunagan, Luca Campanelli, Mark Steedman, Jonathan Brennan, John Hale
- CASE 2021** [Modality and Negation in Event Extraction](#)

Workshop on Challenges and Applications of Automated Extraction of Socio-political Events from Text
Sander Bijl de Vroe, Liane Guillou, **Miloš Stanojević**, Nick McKenna and Mark Steedman

- ACL 2020** [**Max-Margin Incremental CCG Parsing**](#)
Annual Meeting of the Association for Computational Linguistics
Miloš Stanojević and Mark Steedman
- IWPT 2020** [**Span-Based LCFRS-2 Parsing**](#)
The 16th International Conference on Parsing Technologies
Miloš Stanojević and Mark Steedman
- CUNY 2020** [**Predictive Processing of Coordination in CCG**](#)
CUNY Human Sentence Processing Conference
Miloš Stanojević, John Hale 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 B. 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
- PROPOR 2018** [**SICK-BR: a Portuguese corpus for inference**](#)
International Conference on Computational Processing of the Portuguese Language
Livy Real, Ana Rodrigues, Andressa Vieira e Silva, Beatriz Albiero, Bruna Thalenberg, Bruno Guide, Cindy Silva, Guilherme de Oliveira Lima, Igor CS Câmara, **Miloš Stanojević**, Rodrigo Souza, Valeria de Paiva

- PhD Thesis 2017** [Permutation Forests for Modeling Word Order in Machine Translation](#)
University of Amsterdam 2017
Miloš Stanojević
- 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
- WMT 2016** [Results of the WMT16 Metrics Shared Task](#)
Conference on Machine Translation
Ondřej Bojar, Yvette Graham, Amir Kamran and **Miloš Stanojević**
- WMT 2016** [Results of the WMT16 Tuning Shared Task](#)
Conference on Machine Translation
Bushra Jawaid, Amir Kamran, **Miloš Stanojević** and Ondřej Bojar
- 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

WMT 2015	BEER 1.1: ILLC UvA submission to metrics and tuning task <i>Workshop on Machine Translation</i> Miloš Stanojević and Khalil Sima'an
WMT 2015	Results of the WMT15 Metrics Shared Task <i>Workshop on Machine Translation</i> Miloš Stanojević , Amir Kamran, Philipp Koehn and Ondřej Bojar
WMT 2015	Results of the WMT15 Tuning Shared Task <i>Workshop on Machine Translation</i> Miloš Stanojević , Amir Kamran and Ondřej Bojar
SSST 2014	Evaluating Word Order Recursively over Permutation-Forests <i>Workshop on Syntax, Semantics and Structure in Statistical Translation</i> Miloš Stanojević and Khalil Sima'an
WMT 2014	BEER: BETter Evaluation as Ranking <i>Workshop on Machine Translation</i> Miloš Stanojević and Khalil Sima'an
EMNLP 2014 short paper	Fitting Sentence Level Translation Evaluation with Many Dense Features <i>Conference on Empirical Methods in Natural Language Processing</i> Miloš Stanojević and Khalil Sima'an
WMT 2012	Selecting data for English-to-Czech machine translation <i>Workshop on Machine Translation</i> Aleš Tamchyna, Petra Galuščáková, Amir Kamran, Miloš Stanojević , Ondřej Bojar

CONTRIBUTIONS TO THE COMMUNITY

Reviewing for conferences: ACL, NAACL, EMNLP, CoNLL, AAAI

Reviewing for journals: TACL, CL, NLE, LREC, MT, LM

Organizing shared tasks: Workshop on Machine Translation - Metrics task in [2015](#) and [2016](#)
Workshop on Machine Translation - Tuning task in [2015](#) and [2016](#)

SUPERVISION AND MENTORSHIP

2022
DeepMind
scholar mentor Mukhtar Mohamed – now MSc student at University of Edinburgh
Part of DeepMind's scholars programme.

2021
University of Edinburgh
MSc thesis
main supervisor Seth Aycock – now PhD student at University of Amsterdam
[Target-side CCG Supertag Prediction Improves Machine Translation](#)

2019
University of Edinburgh
BSc project
main supervisor Chiehmin Wei – now MSc student at Cornell
Zero-Shot and Universal Parsing with Multilingual Contextualized Embeddings

2018 – 2019
University of Edinburgh
PhD thesis
co-supervisor John Torr – now RS at Apple Research, Cambridge
[Wide-Coverage Statistical Parsing with Minimalist Grammars](#)

TEACHING

2012/2013 summer
University of Amsterdam TA **Statistical Structure in NLP**

2013/2014 winter
University of Amsterdam TA **Elements of Language Processing**

2014/2015 summer
University of Amsterdam TA project course on **Monte Carlo Inference for PCFG**

2015/2016 summer
University of Amsterdam TA **Natural Language Processing 2**

2016/2017 summer
University of Amsterdam TA **Natural Language Processing 2**

INVITED TALKS

<i>University of Cambridge</i> Cambridge, UK, 2023	The role of syntax in the world of large language models
<i>UCL linguistics department</i> London, UK, 2023	What is the relation of Syntactic Parsing, Language Universals, Brain Activity and Large Language Models?
<i>ETH Zürich</i> Zürich, 2022	Testing Syntactic Theory on all Marr's Levels of Analysis
<i>Mathematics of Language</i> Montpellier, 2021	CCG Combinators in Incremental Processing, Brain Activity and Linguistic Universals
<i>DeepMind</i> London, 2021	Integrating Deep Learning with Deep Syntax
<i>Nuance NL & AI lab</i> Sunnyvale, 2017	Learning Reordering Grammars
<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 Serbia awarded for taking part in international mathematical competitions
2002 - 2004	Scholarship from the Ministry of Education of Serbia awarded for taking part in international mathematical competition
