

# MILOŠ STANOJEVIĆ

SENIOR RESEARCH SCIENTIST AT GOOGLE DEEPMIND

## RESEARCH INTERESTS

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

## WORK EXPERIENCE

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- 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

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- 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

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- arXiv 2022**  
**under submission**     [Modeling structure-building in the brain with CCG parsing and large language models](#)  
*arXiv*  
**Miloš Stanojević\***, Jonathan Brennan\*, Donald Dunagan, Mark Steedman, John Hale
- bioRxiv 2022**  
**under submission**     [Neural correlates of long-distance dependencies in Chinese and English](#)  
*bioRxiv*  
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 2022**     [Transformer Grammars: Augmenting Transformer Language Models with Syntactic Inductive Biases at Scale](#)  
*Transactions of the Association for Computational Linguistics*  
Laurent Sartran, Samuel Barrett, Adhiguna Kuncoro, **Miloš Stanojević**, Phil Blunsom, Chris Dyer
- 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
- CL journal 2021**     [Formal Basis of a Language Universal](#)  
*Computational Linguistics Journal*  
**Miloš Stanojević** and Mark Steedman
- 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\*\*](#)  
*Workshop on Machine Translation*  
**Miloš Stanojević** and Khalil Sima'an
- WMT 2015**      [\*\*Results of the WMT15 Metrics Shared Task\*\*](#)  
*Workshop on Machine Translation*  
**Miloš Stanojević**, Amir Kamran, Philipp Koehn and Ondřej Bojar
- WMT 2015**      [\*\*Results of the WMT15 Tuning Shared Task\*\*](#)  
*Workshop on Machine Translation*  
**Miloš Stanojević**, Amir Kamran and Ondřej Bojar
- 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
- WMT 2012**      [\*\*Selecting data for English-to-Czech machine translation\*\*](#)  
*Workshop on Machine Translation*  
Aleš Tamchyna, Petra Galuščáková, Amir Kamran, **Miloš Stanojević**,  
Ondřej Bojar
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## CONTRIBUTIONS TO THE COMMUNITY

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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

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2022  
**DeepMind**  
*scholar mentor*

Mukhtar Mohamed – now at University of Edinburgh  
**Part of DeepMind's scholars programme.**

2021  
**University of Edinburgh**  
*MSc thesis*  
*main supervisor*

Seth Aycock  
[Target-side CCG Supertag Prediction Improves Machine Translation](#)

2019  
**University of Edinburgh**  
*BSc project*  
*main supervisor*

Chiehmin Wei – now on PhD studies at Cornell  
**Zero-Shot and Universal Parsing with Multilingual Contextualized Embeddings**

2018 – 2019  
**University of Edinburgh**  
*PhD thesis*  
*co-supervisor*

John Torr – now at Apple Research, Cambridge  
[Wide-Coverage Statistical Parsing with Minimalist Grammars](#)

## TEACHING

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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

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<i>ETH Zürich</i> Zürich, 2022	<b>Testing Syntactic Theory on all Marr's Levels of Analysis</b>
<i>Mathematics of Language</i> Montpellier, 2021	<b>CCG Combinators in Incremental Processing, Brain Activity and Linguistic Universals</b>
<i>DeepMind</i> London, 2021	<b>Integrating Deep Learning with Deep Syntax</b>
<i>Nuance NL &amp; AI lab</i> Sunnyvale, 2017	<b>Learning Reordering Grammars</b>
<i>Rich Parsing Workshop</i> Amsterdam, 2016	<b>Minimalist Grammar Transition-Based Parsing</b>
<i>MT Marathon</i> Prague, 2015	<b>Discriminative Training for Statistical Machine Translation</b>

## SCHOLARSHIPS

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2010 - 2012	<b>Erasmus Mundus scholarship</b>
2004 - 2010	<b>Scholarship from the Ministry of Science and Technological Development of Serbia</b> awarded for taking part in international mathematical competitions
2002 - 2004	<b>Scholarship from the Ministry of Education of Serbia</b> awarded for taking part in international mathematical competition

## REFEREES

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**Prof. Mark Steedman**  
ILCC  
University of Edinburgh  
[steedman@inf.ed.ac.uk](mailto:steedman@inf.ed.ac.uk)

**Prof. John Hale**  
DeepMind and  
University of Georgia  
[jthale@uga.edu](mailto:jthale@uga.edu)

**Prof. Khalil Sima'an**  
ILLC  
University of Amsterdam  
[k.simaan@uva.nl](mailto:k.simaan@uva.nl)