

# MILOŠ STANOJEVIĆ

LECTURER (ASSISTANT PROFESSOR) AT UCL

SENIOR RESEARCH SCIENTIST AT GOOGLE DEEPMIND

## RESEARCH INTERESTS

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- Linguistics: Language Universals, Syntactic Formalisms and Incremental Parsing
- Learning: Neural Latent Variable Models and Probabilistic Inference over Structures
- Applications: Machine Translation, Sign Language Generation and LLMs in general

## WORK EXPERIENCE

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- Sep 2024 – now     **Lecturer (~Assistant Professor) in Computational Linguistics**  
*University College London*  
Linguistics Department, London, UK
- Nov 2021 – now     **Senior Research Scientist**  
*Google DeepMind*  
Language Team, London, UK
- Nov 2017 –  
Oct 2021     **PostDoc / Research Associate**  
*University of Edinburgh*  
School of Informatics, Edinburgh, UK
- July 2017 –  
Oct 2017     **Internship**  
*Nuance Communications (now part of Microsoft)*  
Natural Language and AI group, Sunnyvale, US

## EDUCATION

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- 2013 – 2017     **Ph.D. Natural Language Processing**  
*University of Amsterdam, Netherlands*
- 2011 – 2013     **Mgr. Mathematical Linguistics**  
*Charles University in Prague, Czechia*
- 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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- EMNLP 2024      [Do LLMs learn a true syntactic universal?](#)  
*Empirical Methods in Natural Language Processing*  
John Hale and **Miloš Stanojević**
- ACL 2024      [Multipath parsing in the brain](#)  
*Annual Meeting of the Association for Computational Linguistics*  
Berta Franzluebbers, Donald Dunagan, **Miloš Stanojević**, Jan Buys, John Hale
- CMCL 2024  
*best paper award*      [How can large language models become more human?](#)  
*Workshop on Cognitive Modeling and Computational Linguistics*  
Daphne Wang, Mehrnoosh Sadrzadeh, Miloš Stanojević, Wing-Yee Chow, Richard Breheny
- EMNLP System  
Demo 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	<a href="#"><u>Results of the WMT16 Metrics Shared Task</u></a> <i>Conference on Machine Translation</i> Ondřej Bojar, Yvette Graham, Amir Kamran and <b>Miloš Stanojević</b>
WMT 2016	<a href="#"><u>Results of the WMT16 Tuning Shared Task</u></a> <i>Conference on Machine Translation</i> Bushra Jawaid, Amir Kamran, <b>Miloš Stanojević</b> and Ondřej Bojar
EMNLP 2015	<a href="#"><u>Reordering Grammar Induction</u></a> <i>Conference on Empirical Methods in Natural Language Processing</i> <b>Miloš Stanojević</b> and Khalil Sima'an
PBML 2015	<a href="#"><u>Evaluating MT systems with BEER</u></a> <i>The Prague Bulletin of Mathematical Linguistics</i> <b>Miloš Stanojević</b> and Khalil Sima'an
WMT 2015	<a href="#"><u>BEER 1.1: ILLC UvA submission to metrics and tuning task</u></a> <i>Workshop on Machine Translation</i> <b>Miloš Stanojević</b> and Khalil Sima'an
WMT 2015	<a href="#"><u>Results of the WMT15 Metrics Shared Task</u></a> <i>Workshop on Machine Translation</i> <b>Miloš Stanojević</b> , Amir Kamran, Philipp Koehn and Ondřej Bojar
WMT 2015	<a href="#"><u>Results of the WMT15 Tuning Shared Task</u></a> <i>Workshop on Machine Translation</i> <b>Miloš Stanojević</b> , Amir Kamran and Ondřej Bojar
SSST 2014	<a href="#"><u>Evaluating Word Order Recursively over Permutation-Forests</u></a> <i>Workshop on Syntax, Semantics and Structure in Statistical Translation</i> <b>Miloš Stanojević</b> and Khalil Sima'an
WMT 2014	<a href="#"><u>BEER: BEtter Evaluation as Ranking</u></a> <i>Workshop on Machine Translation</i> <b>Miloš Stanojević</b> and Khalil Sima'an
EMNLP 2014 short paper	<a href="#"><u>Fitting Sentence Level Translation Evaluation with Many Dense Features</u></a> <i>Conference on Empirical Methods in Natural Language Processing</i> <b>Miloš Stanojević</b> and Khalil Sima'an
WMT 2012	<a href="#"><u>Selecting data for English-to-Czech machine translation</u></a> <i>Workshop on Machine Translation</i> Aleš Tamchyna, Petra Galuščáková, Amir Kamran, <b>Miloš Stanojević</b> , Ondřej Bojar

## CONTRIBUTIONS TO THE COMMUNITY

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Reviewing for conferences: ARR, ACL, NAACL, EMNLP, EACL, 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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2024 <b>Google DeepMind</b> <b>internship mentor</b>	Matthias Lindemann now PhD student at University of Edinburgh <b>Compressing Syntax into LLMs</b>
2023 <b>Google DeepMind</b> <b>scholar mentor</b>	Catherine Nana Nyaah Essuman now MSc student at University of Cape Town <b>Part of DeepMind's scholars programme.</b>
2022 <b>Google DeepMind</b> <b>scholar mentor</b>	Mukhtar Mohamed now intern at Google DeepMind <b>Part of DeepMind's scholars programme.</b>
2021 <b>University of Edinburgh</b> <b>MSc thesis</b> <b>main supervisor</b>	Seth Aycock now PhD student at University of Amsterdam <a href="#"><u>Target-side CCG Supertag Prediction Improves Machine Translation</u></a>
2019 <b>University of Edinburgh</b> <b>BSc project</b> <b>main supervisor</b>	Chiehmin Wei now MSc student at Cornell <b>Zero-Shot and Universal Parsing with Multilingual Contextualized Embeddings</b>
2018 – 2019 <b>University of Edinburgh</b> <b>PhD thesis</b> <b>co-supervisor</b>	John Torr now RS at Apple Research, Cambridge <a href="#"><u>Wide-Coverage Statistical Parsing with Minimalist Grammars</u></a>

## TEACHING

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2012/2013 summer <i>University of Amsterdam</i>	TA <b>Statistical Structure in NLP</b>
2013/2014 winter <i>University of Amsterdam</i>	TA <b>Elements of Language Processing</b>

2014/2015 summer <i>University of Amsterdam</i>	TA project course on <b>Monte Carlo Inference for PCFG</b>
2015/2016 summer <i>University of Amsterdam</i>	TA <b>Natural Language Processing 2</b>
2016/2017 summer <i>University of Amsterdam</i>	TA <b>Natural Language Processing 2</b>

## INVITED TALKS

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<i>University of Amsterdam Netherlands, 2023</i>	<b>Syntactic Structures and Large Language Models</b>
<i>University of Cambridge Cambridge, UK, 2023</i>	<b>The role of syntax in the world of large language models</b>
<i>UCL London, UK, 2023</i>	<b>What is the relation of Syntactic Parsing, Language Universals, Brain Activity and Large Language Models?</b>
<i>ETH Zürich Zürich, Switzerland, 2022</i>	<b>Testing Syntactic Theory on all Marr's Levels of Analysis</b>
<i>Mathematics of Language Montpellier, France, 2021</i>	<b>CCG Combinators in Brain Activity and Linguistic Universals</b>
<i>DeepMind London, UK, 2021</i>	<b>Integrating Deep Learning with Deep Syntax</b>
<i>Nuance NL &amp; AI lab Sunnyvale, USA, 2017</i>	<b>Learning Reordering Grammars</b>
<i>Rich Parsing Workshop Amsterdam, 2016</i>	<b>Minimalist Grammar Transition-Based Parsing</b>
<i>MT Marathon Prague, Czechia, 2015</i>	<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