

MILOŠ STANOJEVIĆ

LECTURER (ASSISTANT PROFESSOR) AT UCL

SENIOR RESEARCH SCIENTIST AT GOOGLE DEEPMIND

RESEARCH INTERESTS

- 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
<i>University College London</i>
Linguistics Department, London, UK |
| Nov 2021 – now | Senior Research Scientist
<i>Google DeepMind</i>
Language Team, London, UK |
| Nov 2017 –
Oct 2021 | PostDoc / Research Associate
<i>University of Edinburgh</i>
School of Informatics, Edinburgh, UK |
| July 2017 –
Oct 2017 | Internship
<i>Nuance Communications (now part of Microsoft)</i>
Natural Language and AI group, Sunnyvale, US |

EDUCATION

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|-------------|---|
| 2013 – 2017 | Ph.D. Natural Language Processing
<i>University of Amsterdam, Netherlands</i> |
| 2011 – 2013 | Mgr. Mathematical Linguistics
<i>Charles University in Prague, Czechia</i> |
| 2010 – 2011 | M.Sc. Human Language Science and Technology
<i>University of Malta, Malta</i> |
| 2006 – 2010 | B.Sc. Electrical Engineering
<i>University of Niš, Serbia</i> |
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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** [How can large language models become more human?](#)
best paper award *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	<u>Results of the WMT16 Metrics Shared Task</u> <i>Conference on Machine Translation</i> Ondřej Bojar, Yvette Graham, Amir Kamran and Miloš Stanojević
WMT 2016	<u>Results of the WMT16 Tuning Shared Task</u> <i>Conference on Machine Translation</i> Bushra Jawaid, Amir Kamran, Miloš Stanojević and Ondřej Bojar
EMNLP 2015	<u>Reordering Grammar Induction</u> <i>Conference on Empirical Methods in Natural Language Processing</i> Miloš Stanojević and Khalil Sima'an
PBML 2015	<u>Evaluating MT systems with BEER</u> <i>The Prague Bulletin of Mathematical Linguistics</i> Miloš Stanojević and Khalil Sima'an
WMT 2015	<u>BEER 1.1: ILLC UvA submission to metrics and tuning task</u> <i>Workshop on Machine Translation</i> Miloš Stanojević and Khalil Sima'an
WMT 2015	<u>Results of the WMT15 Metrics Shared Task</u> <i>Workshop on Machine Translation</i> Miloš Stanojević , Amir Kamran, Philipp Koehn and Ondřej Bojar
WMT 2015	<u>Results of the WMT15 Tuning Shared Task</u> <i>Workshop on Machine Translation</i> Miloš Stanojević , Amir Kamran and Ondřej Bojar
SSST 2014	<u>Evaluating Word Order Recursively over Permutation-Forests</u> <i>Workshop on Syntax, Semantics and Structure in Statistical Translation</i> Miloš Stanojević and Khalil Sima'an
WMT 2014	<u>BEER: BEtter Evaluation as Ranking</u> <i>Workshop on Machine Translation</i> Miloš Stanojević and Khalil Sima'an
EMNLP 2014 short paper	<u>Fitting Sentence Level Translation Evaluation with Many Dense Features</u> <i>Conference on Empirical Methods in Natural Language Processing</i> Miloš Stanojević and Khalil Sima'an
WMT 2012	<u>Selecting data for English-to-Czech machine translation</u> <i>Workshop on Machine Translation</i> Aleš Tamchyna, Petra Galuščáková, Amir Kamran, Miloš Stanojević , Ondřej Bojar

CONTRIBUTIONS TO THE COMMUNITY

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

2024 Google DeepMind internship mentor	Matthias Lindemann now PhD student at University of Edinburgh Compressing Syntax into LLMs
2023 Google DeepMind scholar mentor	Catherine Nana Nyaah Essuman now MSc student at University of Cape Town Part of DeepMind's scholars programme.
2022 Google DeepMind scholar mentor	Mukhtar Mohamed now intern at Google DeepMind Part of DeepMind's scholars programme.
2021 University of Edinburgh MSc thesis main supervisor	Seth Aycock now PhD student at University of Amsterdam <u>Target-side CCG Supertag Prediction Improves Machine Translation</u>
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 <u>Wide-Coverage Statistical Parsing with Minimalist Grammars</u>

TEACHING

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

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

INVITED TALKS

<i>Johns Hopkins University Baltimore, USA, 2024</i>	Syntactic Universals in Grammars and LLMs
<i>University of Amsterdam Netherlands, 2023</i>	Syntactic Structures and Large Language Models
<i>University of Cambridge Cambridge, UK, 2023</i>	The role of syntax in the world of large language models
<i>UCL London, UK, 2023</i>	What is the relation of Syntactic Parsing, Language Universals, Brain Activity and Large Language Models?
<i>ETH Zürich Zürich, Switzerland, 2022</i>	Testing Syntactic Theory on all Marr's Levels of Analysis
<i>Mathematics of Language Montpellier, France, 2021</i>	CCG Combinators in Brain Activity and Linguistic Universals
<i>DeepMind London, UK, 2021</i>	Integrating Deep Learning with Deep Syntax
<i>Nuance NL & AI lab Sunnyvale, USA, 2017</i>	Learning Reordering Grammars
<i>Rich Parsing Workshop Amsterdam, 2016</i>	Minimalist Grammar Transition-Based Parsing
<i>MT Marathon Prague, Czechia, 2015</i>	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
