

Ali Basirat  
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## Short presentation

I am an assistant professor of Natural Language Processing and Computational Linguistics at the Center for Language Technology, University of Copenhagen. My research focuses on data-driven approaches to language technology, especially explainable natural language processing and morphosyntactic analysis. Specifically, I study data-driven syntax, representation learning, and word embeddings. I have introduced tools and techniques to better cope with the typological diversity of languages and improve the efficiency of language processing tools. I have also explored universal patterns in grammatical gender assignments across languages. In addition, I am interested in interpreting large language model representations and adapting them for various tasks.

## Qualifications

Pedagogy , Becoming a Teacher in Higher Education, Linköping University  
Award Date: 16 Nov 2022  
Computational Linguistics, PhD, Uppsala University  
Award Date: 8 Sep 2018

## Employment

**Tenure Track Assistant Professor**  
Department of Nordic Studies and Linguistics  
København S, Denmark  
15 Apr 2023 → nu

### Department of Nordic Studies and Linguistics

København S, Denmark  
15 Apr 2023 → 15 Apr 2023

### Postdoctoral Fellow

Department of Computer and Information Science (IDA), Linköping University  
Linköping, Sweden  
1 Jan 2021 → 15 Apr 2023

### Postdoctoral Researcher

Department of Linguistics and Philology, Uppsala University  
Sweden  
1 Jan 2019 → 31 Dec 2020

### Doctorand

Uppsala University  
Uppsala, Sweden  
1 Jan 2014 → 1 Jan 2018

## Research outputs

### Efficient Structured Prediction with Transformer Encoders

Basirat, Ali, 14 Mar 2024, In: The Northern European Journal of Language Technology (NEJLT). 10, 1

**Digital Conceptual History and the Emergence of a Globalized Climate Imaginary**

Boyden, M., Basirat, Ali & Berglund, K., Dec 2022, In: Contributions to the History of Concepts. 17, 2, p. 95-122

**Nucleus Composition in Transition-based Dependency Parsing**

Nivre, J., Basirat, Ali, Dürlich, L. & Moss, A., Dec 2022, In: Computational Linguistics. 48, 4, p. 849-886 38 p.

**An empirical study on the contribution of formal and semantic features to the grammatical gender of nouns**

Basirat, Ali, Allasonnière-Tang, M. & Berdicevskis, A., 1 Jan 2021, In: Linguistics Vanguard. 7, 1, p. 2020-0048

**Syntactic nuclei in dependency parsing - A multilingual exploration**

Basirat, Ali & Nivre, J., 2021, *EACL 2021 - 16th Conference of the European Chapter of the Association for Computational Linguistics, Proceedings of the Conference*. Association for Computational Linguistics (ACL), p. 1376-1387 12 p. (EACL 2021 - 16th Conference of the European Chapter of the Association for Computational Linguistics, Proceedings of the Conference).

**Cross-lingual Word Embeddings beyond Zero-shot Machine Translation**

Chen, S. & Basirat, Ali, 3 Nov 2020.

**An exploration of the encoding of grammatical gender in word embeddings**

Veeman, H. & Basirat, Ali, 5 Aug 2020.

**Word embedding and neural network on grammatical gender – A case study of Swedish**

Allasonnière-Tang, M. & Basirat, Ali, 28 Jul 2020.

**Greedy Transition-Based Dependency Parsing with Discrete and Continuous Supertag Features**

Basirat, Ali & Nivre, J., 9 Jul 2020.

**Real-valued syntactic word vectors**

Basirat, Ali & Nivre, J., 3 Jul 2020, In: Journal of Experimental and Theoretical Artificial Intelligence. 32, 4, p. 557-579 23 p.

**Cross-lingual Embeddings Reveal Universal and Lineage-Specific Patterns in Grammatical Gender Assignment.**

Veeman, H., Allasonnière-Tang, M., Berdicevskis, A. & Basirat, Ali, 2020, p. 265-275.

**Shifted Randomized Singular Value Decomposition**

Basirat, Ali, 26 Nov 2019.

**Linguistic information in word embeddings**

Basirat, Ali & Tang, M., 2019, *Agents and Artificial Intelligence - 10th International Conference, ICAART 2018, Revised Selected Papers*. van den Herik, J. & Rocha, A. P. (eds.). Cham: Springer Verlag, p. 492-513 22 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), Vol. 11352 LNAI).

**Lexical and morpho-syntactic features in word embeddings a case study of nouns in Swedish**

Basirat, Ali & Tang, M., 2018, *ICAART 2018 - Proceedings of the 10th International Conference on Agents and Artificial Intelligence*. Rocha, A. P. & van den Herik, J. (eds.). SCITEPRESS (Science and Technology Publications, Lda.), p. 663-674 12 p. (ICAART 2018 - Proceedings of the 10th International Conference on Agents and Artificial Intelligence, Vol. 2).

**Principal Word Vectors**

Basirat, Ali, 2018, Uppsala Universitet Acta Universitatis Upsaliensis. 159 p.

### **A bootstrapping method for development of Treebank**

Zarei, F., Basirat, Ali, Faili, H. & Mirain, M., 2 Jan 2017, In: Journal of Experimental and Theoretical Artificial Intelligence. 29, 1, p. 19-42 24 p.

### **From raw text to universal dependencies – Look, no tags!**

de Lhoneux, M., Shao, Y., Basirat, Ali, Kiperwasser, E., Stymne, S., Goldberg, Y. & Nivre, J., 2017, *Rediger CoNLL 2017 - SIGNLL Conference on Computational Natural Language Learning, Proceedings of the CoNLL 2017 Shared Task: Multilingual Parsing from Raw Text to Universal Dependencies*. Association for Computational Linguistics (ACL), p. 207-217 11 p.

### **Real-valued Syntactic Word Vectors (RSV) for Greedy Neural Dependency Parsing**

Basirat, Ali & Nivre, J., 2017, In: NoDaLiDa 2017 - 21st Nordic Conference of Computational Linguistics, Proceedings of the Conference. p. 20-28 9 p.

### **A statistical model for grammar mapping**

Basirat, Ali, Faili, H. & Nivre, J., 1 Mar 2016, In: Natural Language Engineering. 22, 2, p. 215-255 41 p.

### **Bridge the gap between statistical and hand-crafted grammars**

Basirat, Ali & Faili, H., Aug 2013, In: Computer Speech and Language. 27, 5, p. 1085-1104 20 p.

### **Automatic Enhancement of LTAG Treebank.**

Zarei, F., Basirat, Ali, Faili, H. & Mirian, M. S., 2013, p. 733-739.

### **Automatic enhancement of LTAG Treebanks**

Zarei, F., Basirat, Ali, Faili, H. & Mirian, M. S., 2013, In: International Conference Recent Advances in Natural Language Processing, RANLP. p. 733-739 7 p.

### **An Unsupervised Approach for Linking Automatically Extracted and Manually Crafted LTAGs**

Faili, H. & Basirat, Ali, 2011, *An Unsupervised Approach for Linking Automatically Extracted and Manually Crafted LTAGs*. Springer, Vol. 6608. (Lecture Notes in Computer Science, Vol. 6608).

### **An unsupervised approach for linking automatically extracted and manually crafted LTAGs**

Faili, H. & Basirat, Ali, 2011, *Computational Linguistics and Intelligent Text Processing - 12th International Conference, CICLing 2011, Proceedings*. PART 1 ed. p. 68-81 14 p. (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); No. PART 1, Vol. 6608 LNCS).

### **Constructing linguistically motivated structures from statistical grammars**

Basirat, Ali & Faili, H., 2011, In: International Conference Recent Advances in Natural Language Processing, RANLP. p. 63-69 7 p.

### **Augmenting the automated extracted tree adjoining grammars by semantic representation**

Faili, H. & Basirat, Ali, 2010, *Proceedings of the 6th International Conference on Natural Language Processing and Knowledge Engineering, NLP-KE, 2010*. 5587766. (Proceedings of the 6th International Conference on Natural Language Processing and Knowledge Engineering, NLP-KE 2010).

## **Activities**

### **Association for Computational Linguistics (External organisation)**

Basirat, Ali (Member)  
2021

### **Nordic Language Processing Laborator (NLPL) (External organisation)**

Basirat, Ali (Member)  
2017

