

Konstantinos Kogkalidis
CURRICULUM VITAE

Updated December 23, 2024

Structure-Aware Machine Learning | Neurosymbolic Integration
Syntax-Semantics Interface | Computational Syntax | Type & Proof Theory

Personal Information

Date of Birth 19 July 1991
Nationality Greek
Current Residence Bologna, Italy
Pronouns he/him

Contact & Links

✉ konstantinos at riseup dot net
🐙 github.com/konstantinoskokos
🌐 konstantinoskokos.github.io

Academia

09/2024 - **Visiting Researcher**
Institution University of Bologna

07/2023 - **Postdoctoral Researcher**
Institution Artificial Intelligence & Machine Learning Group, Aalto University
Research Topic *Neurosymbolic Machine Learning*

09/2018 - 12/2022 **PhD Candidate in Computational Linguistics**
Institution Utrecht Institute of Linguistics, Utrecht University
Thesis [Dependency as Modality, Parsing as Permutation](#)
Promotors Michael Moortgat & Richard Moot
Committee A. v. d. Bosch, M. Sadrzadeh, J. Bos, S. Clark, S. Chatzikyriakidis
Awards [E. W. Beth Dissertation Prize, FoLLI](#) (2024)

09/2017 - 07/2019 **Research MSc in Artificial Intelligence** (120 EC, cum laude)
Institution Graduate School of Natural Sciences, Utrecht University
Specializations Logic & Reasoning

11/2010 - 05/2017 **Diploma in Electrical & Computer Engineering** (300 EC, MSc equivalent)
Institution Department of Engineering, Aristotle University of Thessaloniki
Specialization Electronics & Computers

Industry

02/2024 - 12/2024 **ML Research Scientist @ skyfora**
Deep learning for localized weather forecasting.

07/2017 - 09/2018 **ML Engineer @ geekbot**
Representation learning for short & unstructured text at scale.

Teaching

| | |
|-------------|--|
| 2022 - 2023 | Compositional Models of Vector-Based Semantics (ESSLLI 2022, guest) |
| 2021 - 2022 | Logic & Language (UU AI MSc, guest, TA) |
| 2020 - 2021 | Logic & Language (UU AI MSc, main instructor) |
| 2019 - 2020 | Machine Learning for Human Vision & Language (UU AI MSc, TA) |
| 2018 - 2019 | Logic & Language (UU AI MSc, tutorials, TA) Advanced Topics in Cognitive Modeling (UU AI MSc, TA) |

Scholarships, Grants & Awards

| | |
|------------------|--|
| 12/2024 | Concurrent Programming and Lambek Calculi (Working Visit) |
| Awarded Amount | 1 500 € |
| Awarding Body | Royal Netherlands Academy of Arts and Sciences (KNAW) |
| Host Institution | University of Groningen |
| Host | Pèrez Jorge |
| 07/2024 | E. W. Beth Dissertation Prize (Best Dissertation) |
| Awarded Amount | 1 500 € |
| Awarding Body | The Association for Logic, Language and Information (FoLLI) |
| 09/2023 | Neural Premise Selection for Agda (Short-Term Scientific Mission) |
| Awarded Amount | 1 330 € |
| Awarding Body | European Research Network on Formal Proofs |
| Host Institution | Chalmers |
| Host | Jean-Philippe Bernardy |

All my academic contributions below (papers, code, slides, etc.) are open-source and available through my website.

PhD Thesis

- [Dependency as Modality, Parsing as Permutation](#)
In *LOT Dissertations Series*. 2023.
E. W. Beth Dissertation Prize 2024 (best dissertation)

Publications & Preprints

1. [Nominal Class Assignment in Swahili: A Computational Account](#)
Giada Palmieri, Konstantinos Kogkalidis
In *Proceedings of the 10th Italian Conference on Computational Linguistics (CLiC-it 2024)*.
2. [On Tables with Numbers, with Numbers](#)
Konstantinos Kogkalidis, Stergios Chatzikyriakidis
Preprint. 2024
3. [Learning Structure-Aware Representations of Dependent Types](#)
Konstantinos Kogkalidis, Orestis Melkonian, Jean-Philippe Bernardy
In *Proceedings of the 38th Conference on Neural Information Processing Systems (NeurIPS 2024)*.
4. [Algebraic Positional Encodings](#)
Konstantinos Kogkalidis, Jean-Philippe Bernardy, Vikas Garg
In *Proceedings of the 38th Conference on Neural Information Processing Systems (NeurIPS 2024)*.

5. **OYXOY: A Modern NLP Test Suite for Modern Greek**
Konstantinos Kogkalidis, Stergios Chatzikyriakidis, Eirini Chrysovalantou Giannikouri, Vasiliki Katsouli, Christina Klironomou, Christina Koula, Dimitris Papadakis, Thelka Pasparaki, Erofilis Psaltaki, Efthymia Sakellariou, Hara Soupiona
In *Findings of the Association for Computational Linguistics (EACL 2024)*.
6. **SPINDLE: Spinning Raw Text into Lambda Terms with Graph Attention**
Kogkalidis, Michael Moortgat, Richard Moot
In *Proceedings of the 17th Conference of the European Chapter of the Association for Computational Linguistics: System Demonstrations (EACL 2023)*.
7. **Geometry-Aware Supertagging with Heterogeneous Dynamic Convolutions**
Konstantinos Kogkalidis and Michael Moortgat
In *Proceedings of the 2023 CLASP Conference on Learning with Small Data (LSD 2023)*.
8. **Improving BERT Pretraining with Syntactic Supervision**
Georgios Tziafas, Konstantinos Kogkalidis, Gijs Wijnholds and Michael Moortgat.
In *Proceedings of the 2023 CLASP Conference on Learning with Small Data (LSD 2023)*.
9. **Discontinuous Constituency and BERT: A Case Study of Dutch**
Konstantinos Kogkalidis and Gijs Wijnholds
In *Findings of the Association for Computational Linguistics (ACL 2022)*.
10. **Diamonds are Forever: Theoretical and Empirical Support for a Dependency-Enhanced Type Logic**
Michael Moortgat, Konstantinos Kogkalidis and Gijs Wijnholds
In *Logic and Algorithms in Computational Linguistics 2021 (LACompLing2021)*.
11. **A Logic-Based Framework for Natural Language Inference in Dutch**
Lasha Abzianizde and Konstantinos Kogkalidis
In *Journal of Computational Linguistics in the Netherlands (CLIN 2021)*.
12. **Fighting the COVID-19 Infodemic with a Holistic BERT Ensemble**
Georgios Tziafas, Konstantinos Kogkalidis and Tommaso Caselli
In *Proceedings of the 4th Workshop on NLP for Internet Freedom (NLP4IF 2021)*.
13. **Neural Proof Nets**
Konstantinos Kogkalidis, Michael Moortgat and Richard Moot
In *Proceedings of the 24th Conference on Computational Natural Language Learning (CoNLL 2022)*.
14. **Æthel: Automatically Extracted Typological Derivations for Dutch**
Konstantinos Kogkalidis, Michael Moortgat and Richard Moot
In *Proceedings of the 12th Language Resources and Evaluation Conference (LREC 2020)*.
15. **Deductive Parsing with an Unbounded Type Lexicon**
Konstantinos Kogkalidis, Michael Moortgat, Richard Moot and Georgios Tziafas
Preprint. 2019
16. **Constructive Type-Logical Supertagging with Self-Attention Networks**
Konstantinos Kogkalidis, Michael Moortgat and Tejaswini Deoskar
In *Proceedings of the 4th Workshop on Representation Learning for NLP (REPL4NLP 2019)*.
17. **Towards a 2-Multiple Context-Free Language for the 3-Dimensional Dyck Language**
Konstantinos Kogkalidis and Orestis Melkonian
In *At the Intersection of Language, Logic and Information (ESSLLI 2018)*.

Presentations (selection)

1. [Contributed (Poster, Spotlight)] **Algebraic Positional Encodings**
Neural Information Processing Systems, Vancouver, 2024.
2. [Contributed (Poster)] **Learning Structure-Aware Representations of Dependent Types**
Neural Information Processing Systems, Vancouver, 2024.
3. [Invited] **Tables with Numbers, and What They (Do Not) Mean**
Computational Linguistics and Language Technology Lab (CLLT) at the University of Crete, Crete, 2024.
4. [Invited] **Empiricism in Computational Linguistics**
Circolo Linguistico dell'Università di Bologna, Bologna, 2024.
5. [Contributed (Poster)] **Spinning Raw Text into Lambda Terms with Graph Attention**
The 17th Conference of the European Chapter of the Association for Computational Linguistics, Dubrovnik, 2023.
6. [Contributed] **Neurosymbolic Proof Search for Linguistics**
Logic for the AI Spring, Lake Como School of Advanced Studies, Como, 2023.
7. [Invited] **The Unicorn of Constant-Time Parsing**
End-to-End Compositional Models of Vector-Based Semantics, ESSLLI, Galway, 2022.
8. [Lecture] **Logic-Based Parsing with Neural Networks**
End-to-End Compositional Models of Vector-based Semantics, ESSLLI, Galway, 2022.
9. [Contributed] **Supertagging Beyond Trees with Heterogeneous Dynamic Convolutions**
Computational Linguistics in the Netherlands, CLIN32, Tilburg, 2022.
10. [Contributed] **Logic-Based Reasoning for Natural Language Inference in Dutch**
Computational Linguistics in the Netherlands, CLIN31, Utrecht, 2021.
11. [Internal (Demo)] **From Text to Meaning: a Type-Driven Treebank and Applications**
Language Sciences Day, Utrecht, 2021.
12. [Contributed] **Neural Proof Nets**
The 24th Conference on Computational Natural Language Learning, virtual, 2020.
13. [Contributed] **Typed Supertags and Semantic Parses for Dutch**
Computational Linguistics in the Netherlands, CLIN30, Utrecht, 2020.
14. [Contributed] **Deductive Parsing with an Unbounded Type Lexicon**
SemSpace 4, ESSLLI, Riga, 2019.
15. [Contributed (Poster)] **Constructive Type-Logical Supertagging with Self-Attention Networks**
The 4th Workshop on Representation Learning for NLP – Florence, 2019.
16. [Contributed] **From Raw Text to Linear Lambda Terms**
Compositionality in Formal and Distributional Models of Natural Language Semantics, Utrecht, 2019.
17. [Contributed] **Towards a 2-MCFG for the 3-Dimensional Dyck Language**
ESSLLI Student Session, ESSLLI, Sofia, 2018.

Volunteering

2016 - 2017

Support of Relief Efforts in Refugee Camps

- Weekly humanitarian aid in the Diavata refugee camp (with [metadراسي](#))
- Installation of mid-range wifi antennae around central Macedonia (with [impact nomads](#))

Extracurricular

Languages

Greek (native), English (fluent), Italian (intermediate), German (B1), Dutch (elementary)