

**Konstantinos Kogkalidis**  
CURRICULUM VITAE

*Updated February 22, 2024*

**Structured & Discrete Machine Learning | Neurosymbolic Integration**  
**Syntax-Semantics Interface | Computational Syntax | Type & Proof Theory**

---

**Personal Information**

Date of Birth	19 July 1991
Nationality	Greek
Current Residence	Helsinki, Finland
Pronouns	he/him

---

**Contact & Links**

	<a href="mailto:λxy.x@y.net">λxy.x@y.net</a> <a href="#">konstantinos riseup</a>
	<a href="https://github.com/konstantinoskokos">github.com/konstantinoskokos</a>
	<a href="https://konstantinoskokos.github.io">konstantinoskokos.github.io</a>

---

**Academia**

07/2023 -	<b>Postdoctoral Researcher</b>
Institution	Artificial Intelligence & Machine Learning Group, Aalto University
Research Topic	<i>Neurosymbolic Reasoning &amp; Reinforcement Learning</i>
09/2018 - 12/2022	<b>PhD Candidate in Computational Linguistics</b>
Institution	Utrecht Institute of Language Sciences, Utrecht University
Thesis	<i>Dependency as Modality, Parsing as Permutation</i> [ <a href="#">published version</a> ]
Promotors	Michael Moortgat & Richard Moot
Committee	A v.d. Bosch, M. Sadrzadeh, J. Bos, S. Clark, S. Chatzikyriakidis
09/2017 - 07/2019	<b>MSc in Artificial Intelligence, cum laude</b> (120 EC)
Institution	Graduate School of Natural Sciences, Utrecht University
Specializations	Logic & Reasoning (main track), Applied Data Science (profile)
Thesis	<i>Extracting &amp; Learning a Dependency-Enhanced Lexicon for Dutch</i>
Supervisor	Michael Moortgat
11/2010 - 05/2017	<b>Diploma in Electrical &amp; Computer Engineering</b> (300 EC, MSc equivalent)
Institution	Department of Engineering, Aristotle University of Thessaloniki
Specialization	Electronics & Computers
Thesis	<i>Matlab Simulation and a Model-Based Reflex Agent for the PacMan Game</i>
Supervisor	Athanasios Kehagias

---

**Industry**

02/2024 -	<b>ML Research Scientist @ <a href="#">skyfora</a></b>
	<i>AI-Based Weather Forecasting</i>
07/2017 - 09/2018	<b>ML Research Scientist @ <a href="#">geekbot</a></b>
	<i>Representation Learning for Short &amp; Unstructured Texts at Scale</i>
2011 - 2012	<b>Game Dev (independent &amp; freelance)</b>
	<i>Placed 4th in <a href="#">ennovation.gr</a> with an adventure-horror demo, ia.</i>

## Teaching

---

2022 - 2023	Compositional Models of Vector-Based Semantics (ESSLLI 2022, guest lecture)
2021 - 2022	Logic & Language (UU AI MSc, 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

---

09/2023	<b>Neural Premise Selection for Agda</b> (Short-Term Scientific Mission)
Awarded Amount	1 330 €
Funding Body	European Research Network on Formal Proofs
Host Institution	Chalmers
Host	Jean-Philippe Bernardy

## Publications & Preprints

---

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

### **Learning Structure-Aware Representations of Dependent Types**

Konstantinos Kogkalidis, Orestis Melkonian, Jean-Philippe Bernardy  
Preprint. 2024

### **Algebraic Positional Encodings**

Konstantinos Kogkalidis, Jean-Philippe Bernardy, Vikas Garg  
Preprint. 2023

### **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, Erofile Psaltaki, Efthymia Sakellariou and Hara Soupiona  
In *Findings of the Association for Computational Linguistics: EACL 2024*. 2023.

### **Dependency as Modality, Parsing as Permutation (PhD Thesis)**

Konstantinos Kogkalidis  
In *LOT Dissertations*. 2023.

### **SPINDLE: Spinning Raw Text into Lambda Terms with Graph Attention**

Kogkalidis, Michael Moortgat and Richard Moot  
In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics: System Demonstrations*. 2023.

### **Diamonds are Forever**

Michael Moortgat, Konstantinos Kogkalidis and Gijs Wijnholds  
In *Logic and Algorithms in Computational Linguistics 2021*. 2022

### **Geometry-Aware Supertagging with Heterogeneous Dynamic Convolutions**

Konstantinos Kogkalidis and Michael Moortgat  
In *Proceedings of the 2023 CLASP Conference on Learning with Small Data*. 2022.

### **Discontinuous Constituency and BERT: A Case Study of Dutch**

Konstantinos Kogkalidis and Gijs Wijnholds

In *Findings of the Association for Computational Linguistics: ACL 2022*. 2022.

### **A Logic-Based Framework for Natural Language Inference in Dutch**

Lasha Abzianizde and Konstantinos Kogkalidis

In *Journal of Computational Linguistics in the Netherlands*. 2021.

### **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*. 2021.

### **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*. 2021.

### **Neural Proof Nets**

Konstantinos Kogkalidis, Michael Moortgat and Richard Moot

In *Proceedings of the 24th Conference on Computational Natural Language Learning*. 2020.

### **Æthel: Automatically Extracted Typological Derivations for Dutch**

Konstantinos Kogkalidis, Michael Moortgat and Richard Moot

In *Proceedings of the 12th Language Resources and Evaluation Conference*. 2020.

### **Deductive Parsing with an Unbounded Type Lexicon**

Konstantinos Kogkalidis, Michael Moortgat, Richard Moot and Georgios Tziafas

Preprint. 2019

### **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*. 2019.

### **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*. 2019.

## **Presentations**

SPINDLE: Spinning Raw Text into Lambda Terms with Graph Attention [poster]

*The 17th Conference of the European Chapter of the Association for Computational Linguistics*

Neurosymbolic Proof Search for Linguistics

*Logic for the AI Spring*, Lame Como School of Advanced Studies, Como.

The Unicorn of Constant-Time Parsing

*End-to-End Compositional Models of Vector-Based Semantics*, ESSLLI 2022, Galway.

Dynamic Proof Nets [demo]

*End-to-End Compositional Models of Vector-Based Semantics*, ESSLLI 2022, Galway.

Logic-Based Parsing with Neural Networks

*Compositional Models of Vector-based Semantics*, ESSLLI 2022, Galway.

Supertagging Beyond Trees with Heterogeneous Dynamic Convolutions

*Computational Linguistics in the Netherlands*, CLIN32, 2022, Tilburg.

Logic-Based Reasoning for Natural Language Inference in Dutch

*Computational Linguistics in the Netherlands*, CLIN31, 2021, Utrecht.

From Text to Meaning: a Type-Driven Treebank and Applications [demo]

*Language Sciences Day*, 2021, Utrecht.

Neural Proof Nets

*Conference on Computational Natural Language Learning*, 2020, virtual.

Typed Supertags and Semantic Parses for Dutch

*Computational Linguistics in the Netherlands*, CLIN30, 2020, Utrecht.

Deductive Parsing with an Unbounded Type Lexicon

*SemSpace 4*, ESSLLI 2019, Riga.

Constructive Type-Logical Supertagging with Self-Attention Networks [poster]

*The 4th Workshop on Representation Learning for NLP*, 2019, Florence.

From Raw Text to Linear  $\lambda$  Terms

*Compositionality in Formal and Distributional Models of Natural Language Semantics*, 2019, Utrecht.

Towards a 2-Multiple Context-Free Grammar for the 3-Dimensional Dyck Language

*ESSLLI Student Session*, ESSLLI 2018, Sofia.

## Volunteering

2016 - 2017

### Support of Relief Efforts in Refugee Camps

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

## Extracurricular

### Languages

Greek [native], English [working proficiency], Italian [intermediate], German [B1, rusty], Dutch [basic]

### Arts & Crafts, Other

slow and heavy music, instruments (bass, guitar and didgeridoo), political theory & history, video games, DIY & maker culture, bird watching