

Michael Sullivan

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Education

PhD in Linguistics

August 2020 - June 2025

Semantics/Pragmatics Track

University at Buffalo

Thesis: Language Modeling over Logical Forms

MS in Computer Science and Engineering

August 2023 - June 2024

Research/Honors Track

University at Buffalo

MS Project: Probing NLI Models with External Negation

BA in Linguistics with Research Distinction

August 2016 - May 2019

The Ohio State University

Minors: Spanish, German

Thesis: A Nondeterministically-Enumerated Categorical Grammar Analysis of Croatian and English Passive Constructions

Research Interests

Logical Reasoning with LLMs

LLM Agents/Reinforcement Learning

(Neurosymbolic) NLP/NLU

Formal Semantics

Academic Positions

Postdoctoral Researcher

August 2024 - Present

Saarland University

Industry Positions

NLP Research Intern

May 2023 - August 2023

BlueHalo LLC

Research Groups

Computational Linguistics Group (Dr. Alexander Koller)

August 2024 - Present

Saarland University

Member

NLP Research Group (Dr. Rohini Srihari)

March 2023 - May 2024

University at Buffalo

Member

BERT/Distributional Semantics Lab
University at Buffalo

January 2021 - May 2024
Coordinator

Syntax/Semantics Lab (Dr. JP Koenig, Dr. Rui Chaves)
University at Buffalo

August 2020 - May 2024
Member

Service

LangLunches Talk Series Organizing Committee
Saarland University

April 2024 - August 2023
Member

Erasmus Mundus LCT Summer School Hackathon
Saarland University

August 28, 2024
Jury Member

Graduate Linguistics Association
University at Buffalo

August 2022 - August 2023
Secretary

Workshops and Invited Talks

Theoretical Connections to GRPO and Their Applications to Tool Use *November 12, 2025*
Intuit AI Learning Series *Invited Talk*

Distributed Machine Learning
University at Buffalo CSE Fall 2023 Workshop Series

September 25, 2023
Speaker

PyTorch Tutorial
University at Buffalo CSE Fall 2023 Workshop Series

September 22, 2023
Event Manager

Teaching (Instructor of Record)

Software Project: Pretraining Language Models
Saarland University

Winter 2025/26

Foundations of Linguistics (Semantics Unit)
Saarland University

Winter 2025/26

Semantic Theory
Saarland University

Summer 2025

Seminar: Graph Deep Learning for NLP
Saarland University

Winter 2024/25

Software Project: Pretraining Language Models
Saarland University

Winter 2024/25

Introduction to Linguistic Analysis (LIN 205)
University at Buffalo

Fall 2022

Advising

Luisa Geiger

(Advisor, Saarland University, 2025)

Investigating Logical Consistency in Automatically Generated Sewing Instructions (MSc Thesis)

Publications

Michael Sullivan, Mareike Hartmann, and Alexander Koller (2025). Procedural Environment Generation for Tool-Use Agents. In *Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing* (in print).

Nicola Horst, Davide Mazzaccara, Antonia Schmidt, Michael Sullivan, Filippo Momentè, Luca Franceschetti, Philipp Sadler, Sherzod Hakimov, Alberto Testoni, Raffaella Bernardi, Raquel Fernández, Alexander Koller, Oliver Lemon, David Schlangen, Mario Giulianelli, and Alessandro Suglia (2025). Playpen: An Environment for Exploring Learning Through Conversational Interaction. In *Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing* (in print).

Luisa Geiger, Mareike Hartmann, Michael Sullivan, and Alexander Koller (2025). Evaluating Spatiotemporal Consistency in Automatically Generated Sewing Instructions. In *Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing* (in print).

Michael Sullivan (2025). Exploring Graph Representations of Logical Forms for Language Modeling. In *Findings of the Association for Computational Linguistics: ACL 2025*.

Michael Sullivan (2025). *Language Modeling over Logical Forms* (Doctoral dissertation, University at Buffalo).

Michael Sullivan (2024). It is not True that Transformers are Inductive Learners: Probing NLI Models with External Negation. In *Proceedings of the 18th Conference of the European Chapter of the Association for Computational Linguistics (Volume 1: Long Papers)*, 1924-1945.

Michael Sullivan, Navid Madani, Sougata Saha, and Rohini Srihari (2023). Positional Transformers for Claim Span Identification. In *Forum for Information Retrieval Evaluation (Working Notes)*.

Sougata Saha, Michael Sullivan, and Rohini Srihari (2023). Hate Speech Detection in Low Resource Indo-Aryan Languages. In *Forum for Information Retrieval Evaluation (Working Notes)*.

Michael Sullivan, Mohammed N. Yasin, and Cassandra L. Jacobs (2023). University at Buffalo at SemEval-2023 Task 11: MASDA–Modelling Annotator Sensibilities through DisAggregation. In *Proceedings of the The 17th International Workshop on Semantic Evaluation (SemEval-2023)*.

Nominated for Best System Paper Award at SemEval 2023

Michael Sullivan (2023). Formal-Logical Distributional Semantics: Applications to Property Inference. In *Workshop on Knowledge Augmented Methods for Natural Language Processing at AAAI 2023*.