

Lena Strobl

lena.strobl@yale.edu

Postdoctoral Associate, Department of Linguistics, Yale University

lenastrobl.com

POSITIONS	Postdoctoral Associate , Department of Linguistics, Yale University	01/2026 – now
	CLAY Lab, with Robert Frank. Funded by a Knut and Alice Wallenberg Foundation (KAW) postdoctoral fellowship.	
	Assistant Researcher , Yale University	09 – 12/2024
	Assistant Researcher (02–05/2024) and Visiting Researcher (09–11/2023), Massachusetts Institute of Technology	2023 – 2024
	PhD Research Intern , Aristo group, Allen Institute for AI, Seattle	07 – 12/2023
EDUCATION	Student Research Assistant , Language Technology Lab, German Research Center for Artificial Intelligence (DFKI), Berlin	2015 – 2018
	PhD in Computer Science , Umeå University, Sweden	2022 – 2025
	Thesis: <i>Transformers as Recognizers and Transducers</i> , defended October 7, 2025. Advisors: Frank Drewes, Marco Kuhlmann. WASP-funded.	
	MSc with Distinction in Computer Science with Speech and Language Processing , University of Sheffield	2021
	Amazon Prize for Best Overall Performance	
PUBLICATIONS	BSc in Computer Science and Mathematics , Freie Universität Berlin	2019
	Simulating Hard Attention Using Soft Attention	
	Andy Yang, Lena Strobl , David Chiang, Dana Angluin. <i>Transactions of the ACL</i> 14, 2026	
	Concise One-Layer Transformers Can Perform Dictionary Lookup	
	Anton Hampe, Lena Strobl , Robert Frank, Dana Angluin. <i>ICGI</i> 2026	
	Transformers as Transducers	
	Lena Strobl , Dana Angluin, David Chiang, Jonathan Rawski, Ashish Sabharwal. <i>Transactions of the ACL</i> 13:200–219, 2025	
	What Formal Languages Can Transformers Express? A Survey	
CURRENT PROJECTS	Lena Strobl , William Merrill, Gail Weiss, David Chiang, Dana Angluin. <i>Transactions of the ACL</i> 12:543–561, 2024	
	Computational Expressivity of Neural Language Models	
	Alexandra Butoi, Robin Chan, Ryan Cotterell, William Merrill, Franz Nowak, Clemente Pasti, Lena Strobl , Anej Svete. <i>ACL 2024 Tutorial Abstracts</i>	
	Average-Hard Attention Transformers Are Constant-Depth Uniform Threshold Circuits	
	Lena Strobl . arXiv:2308.03212, 2023	
TEACHING	Knowledge inference in language models : reproducing analyses from a social-cognition study, reimplementing its cognitive model, and comparing small open models with published human judgments (in progress)	2026 – now
	Strategies in repeated games : combining active automata learning with repeated-game experiments, including known-policy controls and changes to framing and action labels (in progress)	2026 – now
TEACHING	Course co-developer , <i>Formal Languages and Neural Networks</i> , Yale University, with Robert Frank (in preparation)	Spring 2027
	Lecturer , <i>Expressivity of Transformers: Logic, Circuits, and Formal Languages</i> , ESSLLI 2024, Leuven	2024

	Co-author and presenter, tutorial <i>Computational Expressivity of Neural Language Models</i> , ACL 2024, Bangkok	2024
	Assisting lecturer and head teaching assistant, <i>Computational Complexity</i> , Umeå University	2022 – 2023
	Lecturer, <i>Efficient Algorithms</i> , Umeå University	2022
	Teaching assistant, <i>Logic and Discrete Mathematics</i> (block course), FU Berlin	2020
	Lead teaching assistant and mentor, <i>Foundations of Theoretical Computer Science</i> , FU Berlin	2020
	Mentor, <i>Codes, Ciphers and Encrypted Messages</i> , summer course for high-school students, FU Berlin	2020
	Teaching assistant, <i>Linear Algebra</i> , FU Berlin	2019
	Lead teaching assistant, <i>Algorithms, Data Structures and Data Abstraction</i> , FU Berlin	2018 – 2019
	Teaching assistant, <i>Logic and Discrete Mathematics</i> (block course), FU Berlin	2018
	Mentor, Girls' Day, introducing high-school girls to computer science, FU Berlin	2016 – 2019
SELECTED TALKS	Invited speaker, Mathematics of Language (MOL), Stony Brook	2025
	Transformers as Recognizers and Transducers, Google DeepMind, Tokyo	2024
	The Expressive Power of Attention-Based Models, invited talk, Logic and AI Workshop, Amsterdam	2024
	Theoretical Expressivity of Transformers, MIT (Roger Levy's lab; Bob Berwick's group, CSAIL)	2023
ORGANIZING & SERVICE	Proposer and co-organizer, FLaNN Workshop, Yale University	2026
	Co-organizer (one of four), Dagstuhl Seminar 25282, <i>Theory of Neural Language Models</i> , Wadern	2025
	Co-organizer (one of four), NeurIPS workshop <i>What Can('t) Transformers Do?</i> , San Diego	2025
	Steering committee member, International Conference on Grammatical Inference (ICGI)	2024 – now
	Proposer, co-organizer, and lecturer, ESSLLI course <i>Expressivity of Transformers</i> , Leuven	2024
	Co-author and presenter, ACL tutorial <i>Computational Expressivity of Neural Language Models</i> , Bangkok	2024
	Organizer, WASP study trip to Japan (Google DeepMind, RIKEN, NII, Kyoto and Nagoya Universities)	09/2024
	Co-organizer, DLT and WORDS conferences, Umeå	2023
	Co-organizer, Foundations of Language Processing Workshop, Granö	2023
	Host and organizer, FLaNN weekly online seminar on Formal Languages and Neural Networks	2022 – now
	Co-chair, PhD Student Council, Umeå University; vice-chair, WASP Graduate School council	2022 – 2023
	Student representative, Faculty of Engineering council and Computer Science Staff Student Liaison Committee, University of Sheffield	2020 – 2021
	Chair, Teaching and Learning Committee, FU Berlin; student representative on the Faculty Council and the Teaching Assistant Committee; member of hiring committees for professorships and of committees on study programs and teaching	2019 – 2020
SKILLS	Languages	German (native), English (fluent), French (intermediate), Vietnamese (learning)
	Programming	Python, C, C++, Haskell, Go, x86 Assembly
	AI tools	Claude, Claude Code, ChatGPT, Codex