

# David Pohl

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## EDUCATION

<b>Institute of Science Tokyo</b> — M.Sc. Computer Science — GPA: 97/100	Apr 2024 – Present
• Research on tokenization in LLMs supervised by Prof. Naoaki Okazaki	Tokyo, JP
• Published two papers: LLM constrained generation, LLM efficient marginalization	
• Ongoing research on cross-tokenizer distillation	
<b>Heidelberg University</b> — B.Sc. Computer Science — GPA: 1.0/1.0 (with distinction)	Oct 2020 – Sep 2023
• Research on word sense disambiguation supervised by Prof. Michael Gertz	Heidelberg, DE
<b>North Carolina State University</b> — Visiting Student — GPA: 4.0/4.0	Raleigh, US / 2022
<b>Schiller-Gymnasium Cologne</b> — Abitur (A-level) — GPA: 1.1/1.0 (valedictorian)	Cologne, DE / 2020

## EXPERIENCE

<b>Software Engineering Intern</b> — Woven by Toyota	Jun 2025 – Aug 2025
• Built a Chrome extension that auto-checks and corrects software requirements using LLMs	Tokyo, JP
• Integrated support for checking against internal and industry standards (EARS, ISO, INCOSE)	
• Reduced revision time from minutes to seconds	
<b>Strategy Consulting Intern</b> — Boston Consulting Group	Aug 2024 – Oct 2024
• Developed strategies for establishing a new risk division at a major German bank	Frankfurt, DE
• Led the process redesign of tracking and implementing actions demanded by the European Central Bank	
• Consolidated a firm-wide document hierarchy for credit risk and compliance governance	
<b>Research Intern</b> — University of Tokyo	Oct 2023 – Mar 2024
• Led the proposal of a novel news recommendation technique for the Nikkei newspaper	Tokyo, JP
• Implemented and evaluated the method of training an estimator for the relevance decay of news	
<b>Software Engineering Intern</b> — Deutsche Telekom	Aug 2021 – Feb 2022
• Automatized DevOps workflows by building pipelines with Ansible, Concourse, and Docker	Dresden, DE

## PUBLICATIONS

<b>Decoding-Free Sampling Strategies for LLM Marginalization</b>	
• Proposed a novel automata-based sampling method for efficient marginalization	
• Achieved consistent speedups of up to $36\times$ over model-based sampling at similar accuracy	
• <i>David Pohl, Marco Cognetta, Junyoung Lee, Naoaki Okazaki.</i> (under review, <a href="https://arxiv.org/abs/2510.20208">arxiv.org/abs/2510.20208</a> )	
<b>Pitfalls, Subtleties, and Techniques in Automata-Based Subword-Level Constrained Generation</b>	
• Addressed key challenges in implementing constrained generation for subword-level LLMs using automata	
• Implemented and released a fast, reliable pipeline designed for direct use and easy extension	
• <i>Marco Cognetta*, David Pohl*, Junyoung Lee, Naoaki Okazaki.</i> TokShop at ICML 2025 (shared first authorship)	
<b>Online DATEing: A Web Interface for Temporal Annotations</b>	
• Developed and deployed a web interface and API for easy access to temporal tagging models	
• Dennis Aumiller, Satya Almasian, <i>David Pohl</i> , Michael Gertz. SIGIR 2022	

## PROJECTS

<b>Timothy - Your Personal LLM-Driven Shop Assistant</b>	
• Developed a full-stack application with a modern chat frontend for conversational assistance in e-commerce	
• Automated a pipeline of web scraping, data cleaning, and data storage	
<b>Zero-Shot Word Sense Disambiguation using Word Embeddings</b>	
• Surveyed, designed, and evaluated embedding-based approaches to Word Sense Disambiguation (WSD)	
• Revealed that the inherent contextual understanding of BERT serves as a strong baseline in WSD	

## SKILLS

<b>Prog. Languages</b>	Python, Kotlin, TypeScript, SQL
<b>Libraries</b>	PyTorch, NumPy, Pandas, Transformers, spaCy, NLTK, React.js, FastAPI
<b>Tools</b>	Docker, NX Monorepo, Git, Ansible, Concourse, OpenAI/Cohere API
<b>Languages</b>	English: Fluent (CEFR C2 / IELTS 8.5) — German: Native — Japanese: Basic

## AWARDS & HONORS

<b>Fellow of the German National Academic Foundation</b> ( <a href="https://studienstiftung.de/en/facts-and-figures">studienstiftung.de/en/facts-and-figures</a> )	2024 – Present
<b>DAAD Full Scholarship for an International Master's</b> ( <a href="https://daad.de/en/the-daad/what-we-do">daad.de/en/the-daad/what-we-do</a> )	2024 – Present
<b>B.Sc. Distinction “Excellent”</b> — Heidelberg University	2023
<b>U.S. Exchange Scholarship</b> — Baden-Wuerttemberg Foundation	2022
<b>Germany Scholarship</b> — Heidelberg University	2021 – 2023