# Konstantin Dobler

PhD Student & Research Associate

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## Education

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|---|---|
| Nov 2022 – Oct 2026 | **PhD** in **Machine Learning**, Hasso Plattner Institute, *Potsdam, Germany.* *Advisors: Gerard de Melo, Ralf Herbrich, and Desmond Elliott (University of Copenhagen). ELLIS PhD Student (2023–). Supported by KISZ-BB, a project funded by the German Ministry for Education and Research (2022–2023).* |
| Oct 2020 – Aug 2022 | **MSc** in **Computer Science**, Hasso Plattner Institute, *Potsdam, Germany.*<br>– Thesis: "Specializing Pretrained Multilingual Language Models on a Single Language", graded *with distinction.*<br>– Cumulative GPA: 1.2† |
| Oct 2016 – Sep 2020 | **BSc** in **Computer Science**, Hasso Plattner Institute, *Potsdam, Germany.*<br>– Thesis: "Extracting User Behavior and Process Semantics from Usage Data of Enterprise Applications", graded *with distinction.*<br>– Cumulative GPA: 1.5† |

†On a scale from 1-5 with 1.0 being the best possible grade.

## Publications

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| ICML 2024 | **Dobler** and de Melo. "Language Adaptation on a Tight Academic Compute Budget: Tokenizer Swapping Works and bfloat16 Is Enough". ICML 2024's *"Workshop on Advancing Neural Network Training".* [Paper] [Code] |
| COLM 2024 | Hagemann, Weinbach, **Dobler**, Schall, and de Melo. "Efficient Parallelization Layouts for Large-Scale Distributed Model Training". [Paper] [Code] – Previously received Best Paper Award (Workshop) at NeurIPS 2023's *"Workshop on Advancing Neural Network Training".* |
| ACL 2024 | Hoffbauer, Sawicki, Ulrich, Buz, **Dobler**, Schneider, de Melo. "Knowledge Acquisition through Continued Pretraining is Difficult: A Case Study on r/AskHistorians". ACL 2024's *"Workshop on Knowledgable Language Models".* [Paper] [Code] |
| EMNLP 2023 | **Dobler** and de Melo. "Focus: Effective Embedding Initialization for Monolingual Specialization of Multilingual Models". [Paper] [Code] |
| IJCAI 2022 | **Dobler**, Hübscher, Westphal, Sierra-Múnera, de Melo, and Krestel. "Art Creation with Multi-Conditional StyleGANs". [Paper] [Code] |

## Patents

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| 2021 | Berg et al. (incl. **Dobler**). "Generation of Bots Based on Observed Behavior", US Patent Office, US10977058B2. |

## Professional Experience

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| Nov 2022 – Present | **Research Associate** at **Hasso Plattner Institute**, *Potsdam, Germany.* |
| Jul 2024 – Dec 2024 | **Research Intern** at **InstaDeep**, *Paris, France.* |
| May 2020 – Oct 2021 | **Software Engineer, Co-op** at **SAP**, *Berlin, Germany.*<br>– Developed business process graph analytics shipped to Fortune 500 companies |
| Sep 2019 – Mar 2020 | **Software Engineer, Intern** at **SAP Labs**, *Newport Beach, USA.*<br>– Integrated real-time streaming of speech-to-text service using websockets and gRPC |
| Oct 2018 – Sep 2019 | **Student Researcher** at **SAP**, *Potsdam, Germany.*<br>– Co-Inventor of US patent: Automatically generate RPA bots from user behavior |

## Selected Awards & Honors

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| Dec 2023 | Best Paper Award, *NeurIPS Workshop on Advancing Neural Network Training*. |
| Sep 2022 | Honors Medal, *MSc graduation "with distinction" from Hasso Plattner Institute*. |
| Mar 2022 | CleanIT Hackathon, *First Place (1000€)*. |
| Sep 2021 | HPI Business Plan Competition, *Scholarship (18,000€) and Investment (50,000€)*. |

## Summer/Winter Schools

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| 2024 | HPLT & NLPL Winter School on Large Language Models, *Skeikampen, Norway*. |
| 2024 | Machine Learning Summer School (MLSS), *Okinawa, Japan*. |
| 2024 | Advanced Language Processing School (ALPS), *Aussois, France*. |

## Academic Service

### Teaching

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| Fall 2022 | Introduction to Data Science and Machine Learning, *Teaching Assistant*. <br> Hasso Plattner Institute |
| Spring 2023 | Natural Language Processing, *Teaching Assistant*. <br> Hasso Plattner Institute |
| Fall 2023 | Introduction to Programming I, *Teaching Assistant*. <br> Hasso Plattner Institute |
| Fall 2023 | NLP and CV with Deep Learning Research Seminar, *Project Supervisor*. <br> Hasso Plattner Institute |

### Supervision

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| Jan 2023 – Aug 2023 | Johannes Hagemann, Master Thesis, *Advisor*. <br> Hasso Plattner Institute, Industry Partner: Aleph Alpha |

### Reviewing

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| 2023 | TheWebConf, *Reviewer*. |

## Technical Skills

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| Languages | Python, C++, C, TypeScript, JavaScript, Java, Smalltalk. |
| Foundations | Linux, Docker, Bash, Git, SLURM, CI/CD (TravisCI, GitHub Actions), SQL. |
| Machine Learning | PyTorch, Distributed & Sharded Training, HuggingFace, numpy, pandas. |
| Dev Experience | Flask, React, Node.js, React Native, pytest, HTML/CSS, AWS, GCP, ppc64le. |
| Open Source | PyTorch [1] [2], HuggingFace transformers [1] [2] and evaluate, Weights & Biases, LightningAI lightning and lit-gpt, Antvis G6, Google Research XTREME, Spotify Web API, print-on-steroids, nlp-research-template. |

## Talks

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| Sep 2023 | Efficient (Language) Model Training at Research Lab Scale. <br> Data & AI Retreat of Hasso Plattner Institute and UC Irvine |
| Jun 2024 | Large Sequence Models. <br> HPI–MIT BioLLM Symposium |