# Marvin Koß

## Education

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|---|---|
| 2008–2016 | **High School**, *Gymnasium Oedeme*, Lüneburg.<br>2.1 |
| 2016–2017 | **Universität Siegen**, *Computer Science, towards B.S.*.<br>transferred to Heidelberg University |
| since 2017 | **Ruprecht-Karls-Universität Heidelberg**, *Computational Linguistics, towards B.A.*<br>curr. 1.3 |
| since 2022 | **Ruprecht-Karls-Universität Heidelberg**, *Mathematics, towards B.Sc.*<br>curr. 2.3 |

## Academic Employment

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|---|---|---|---|
| **Webmaster** | at ICL, (04/19-04/20) | **Tasks** | Website Maintenance and Development |
| **Research Assistant** | at ZITI, (11/20-10/22) | **Tasks** | Development of a tool for Neural Network Quantization in the DeepChip Project; UQ using BNNs (slides) |
| **Research Assistant** | at IWR, (01/23-09/23), 80h | **Tasks** | Analyzing a Novel Particle-Based Optimizer from a Mean-Field Perspective (Preprint) |
| **Research Assistant** | at IWR, (04/24-09/24), 80h | **Tasks** | Developing a Novel Particle-Based Optimizer (Code) |

## Publications

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| **arXiv Preprint** | On the mean field limit of consensus based methods |

## Academic Teaching

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| **Teaching Assistant** | Formal Mathematical Foundations for Computational Linguists, SS 2018 | **Tasks** | Convey mathematical basics and proof techniques to students and grade exercises |
| **Teaching Assistant** | Formal and Computational Semantics, WS 2018 | **Tasks** | Give tutorials, create python assignments, give some lectures, grade exercises |

## Other Employment

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| **Working Student** | at Sovanta, (01/23-04/23) | **Tasks** | An Image-to-Text Pipeline |
| **Private Tutor** | at Lerncenter HD, (09/23-07/24) | **Tasks** | Math Coaching |

## Volunteer Work

At the Heidelberg CoLi Fachschaft

Helper at ESSLLI 2018, Bulgaria

## Languages

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|---|---|---|
| **German** | Native | |
| **English** | Fluent | C1 |
| **Russian** | Basic | |

## Programming Languages

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|---|---|---|
| **Python** | 7 years of Experience | numpy, pytorch, pyro, sklearn, keras, spaCy, nltk, tensorflow, HF transformers |
| **Java** | Basic Knowledge | |
| **C++** | Basic Knowledge | example project |
| **SQL** | Basic Knowledge | |

## Example Coursework Projects

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|---|---|---|---|
| **B.Sc. Thesis** | Mean-Field Particle Swarm Optimization | thesis | Prof. Dr. Jakob Zech |
| **B.A. Thesis** | Extended Key-Value Retrieval Networks | code, thesis | Prof. Dr. A. Sokolov |
| **Project** | Corpus linguistical investigation of a word cluster | | R. Perkuhn |
| **Project** | Hierarchical Dirichlet Processes for WSI | | Dr. V. Nastase, Dr. M. Herweg |
| **Project** | Pragmatic Modelling Of Utterances Using First Order Logic Semantic Representations | report | Dr. M. Herweg |

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| **Project** | Global Normalization for Machine Translation | Prof. Dr. A. Sokolov |
| **Project** | Unsupervised NMT | Prof. Dr. S. Riezler |

## Side Projects

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| Voice Assistant | Modular Home Assistant Connected to `ChatGPT` | code |
| Pragmatics Workshops | Workshops I give using my Pyro Port of www.problang.org | slides, code |

## Academic Interests

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|---|---|---|
| Narratives | And how they connect reinforcement learning and linguistics | blog post |
| AI Alignment | How can we align AGI with our values? | |
| Unc. Quant. | e.g. in BNNs | |
| Mean Field | Analyses of Particle Systems | |