Zheyu Zhang

github email linkedin website scholar

Education

Ludwig-Maximilian-University of Munich **Oct. 2022 – Aug. 2024**
M.Sc in Computational Linguistics and Computer Science *Munich, Germany*

Ludwig-Maximilian-University of Munich **Apr. 2020 – Sept. 2022**
B.Sc in Computer Science and Mathematics *Munich, Germany*

Skills

Programming: Python, Bash, LaTeX, Java, JavaScript, C, SQL
ML/NLP Frameworks: PyTorch, TensorFlow, LangChain, HuggingFace Ecosystem, Microsoft Azure
Languages: Chinese, English, German

Professional Experience

» Internship in Generative AI with LLMs at Bosch **Nov. 2023 - Present**
Topic: Retrieval-Augmented-Generation(RAG), Large Language Models(LLMs) *Stuttgart Region, Germany*
- Designing and developing RAG pipelines with LLMs like GPT-4 for diverse industrial use cases.
- Leveraging multi-agent collaboration powered by LLMs to enhance capabilities in database access, automated code generation, data visualization, etc.

» NLP Research Assistant at UKP Lab **Oct. 2023 - Feb. 2024**
Supervisor: Prof. Dr. Iryna Gurevych, and Dennis Zyska *Darmstadt, Germany*
- Supported developing an AI-assisted reading web application for academic peer review, encompassing full-stack development and NLP model infrastructure.
- Integrated advanced LLMs, like Llama, GPT-4, and other NLP techniques to enhance user experience.

» Teaching Assistant at LMU Munich **Apr. 2021 - Sept. 2023**
Course: Logic and Discrete Structures *Munich, Germany*
- Conducted tutorials and provided instruction to students.
- Assessed and corrected weekly homework assignments.

Research Experience

CoThought: Efficient Small-Scale Language Model Training with LLMs **2023**
Supervisor: Prof. Dr. David Rügamer, and Ercong Nie
- Employed Chain-of-Thought prompting with LLMs to create human-like training data for smaller language models.
- Applied human language acquisition insights to simulate human cognitive processing on small data scales.
- Pretrained a compact language model using the enhanced data, achieving over a 3% improvement on 10 linguistic and NLU benchmarks.

mPLM-Sim: Measuring Language Similarity with mPLMs **2022 – 2023**
Supervisor: Prof. Dr. Hinrich Schütze, and Peiqin Lin
- Created mPLM-Sim, an innovative measure for language similarity using multilingual pretrained language models (mPLMs) to capture language-specific patterns.
- Analyzed language similarities using around 30 different mPLMs, examining variations across model designs, datasets, and model layers.
- Applied mPLM-Sim to cross-lingual transfer tasks, improving source language selection and achieving a performance boost of 1-2% over other methods.

Unsupervised Monolingual Word Alignment **2022**
Supervisor: Prof. Dr. Hinrich Schütze, and Peiqin Lin
- Developed three alignment methods using embedding similarity matrices in monolingual contexts, achieving a balance between recall and precision.
- Showed that word alignments from mPLMs work well in high-resource languages, rivaling traditional statistical aligners.

Publications

Baby's CoThought: Leveraging Large Language Models for Enhanced Reasoning in Compact Models. **Zheyu Zhang**, Han Yang, Bolei Ma, David Rügamer, and Ercong Nie. 2023. In EMNLP 2023 Workshop CoNLL-CMCL Shared Task BabyLM Challenge.

mPLM-Sim: Better Cross-Lingual Similarity and Transfer in Multilingual Pretrained Language Models. Peiqin Lin, Chengzhi Hu, **Zheyu Zhang**, André FT Martins, and Hinrich Schütze. 2024. In Findings of the European Chapter of the Association for Computational Linguistics: EACL 2024 Findings.