

Keyu Wang

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EDUCATION

University of Tuebingen

M.Sc. in Machine Learning

Tuebingen, Germany

Oct. 2024 – Present

Cumulative GPA: 1.28/1.0

Relevant coursework: Non-convex Optimization of Deep Learning, Efficient Machine Learning in Hardware, Statistical Machine Learning, Probabilistic Machine Learning, Understanding LLMs, etc.

Southeast University

B.Eng. in Artificial Intelligence

Nanjing, China

Sep. 2020 – Jun. 2024

Cumulative GPA: 3.79/4.0, Top 10%

Relevant coursework: Linear Algebra, Calculus, Optimization, Probability Statistics & Stochastic Processes, Data Structures, Database, Distributed Systems, Machine Learning, Deep Learning, Natural Language Processing, etc.

RESEARCH INTERESTS

- **AI Efficiency & MLSys:** Efficient and scalable model training, fine-tuning, deployment and inference.
- **Reasoning:** Chain-of-Thought, Pretraining/RL/Inference Scaling, Logic Reasoning, Neuro-Symbolic AI, etc.
- **Optimization & ML Theory:** Theory of DL and LLMs, including optimization, generalization and robustness, etc.
- **Generative AI:** Large Language Models, Diffusion Models, Multimodal Large Language Models.

PUBLICATIONS

Peer-reviewed Conference

[1] **Can Large Language Models Understand DL-Lite Ontologies? An Empirical Study.**

Keyu Wang, Guilin Qi, Jiaqi Li and Songlin Zhai. In Findings of the Association for Computational Linguistics: EMNLP 2024, pages 2503–2519. <https://aclanthology.org/2024.findings-emnlp.141/>

[2] **An Embedding-based Approach to Inconsistency-tolerant Reasoning with Inconsistent Ontologies.**

Keyu Wang, Site Li, Jiaye Li, Guilin Qi and Qiu Ji. In Proceedings of the 12th International Joint Conference on Knowledge Graphs. <https://arxiv.org/abs/2304.01664>

Journal

[1] **Embedding Ontologies via Incorporating Extensional and Intensional Knowledge.**

Keyu Wang, Guilin Qi, Jiaoyan Chen, Yi Huang and Tianxing Wu. In Data Intelligence, Vol. 7, Issue 4, 1222-1241, 2024. DOI: <https://doi.org/10.3724/2096-7004.di.2024.0088>

RESEARCH EXPERIENCE

Wild, Efficient, and Innovation AI Lab | ELLIS Tuebingen & MPI-IS

Research intern | Supervisor: Dr. Shiwei Liu

Tuebingen, Germany

Mar. 2025 – Present

- Investigating on LLM layer pruning:
 - (1) Demystifying different roles of LLMs' layers in terms of retrieval, knowledge, and reasoning;
 - (2) Reasoning-aware Pruning.

Knowlegde Science & Engineering Lab | Southeast University

Research intern | Supervisor: Prof. Dr. Guilin Qi

Nanjing, China

Feb. 2022 – Jun. 2024

- Investigated on neuro-symbolic knowledge representation and reasoning, especially, reasoning and embedding with knowledge-based and web-based systems such as knowledge graphs and description logic ontologies.
- Led three research projects and produced three first-author manuscripts which were accepted by *EMNLP 2024 Findings*, *IJCKG 2023* and *Data Intelligence Journal* respectively:
 - (1) Evaluating LLMs' Reasoning and Understanding with Description Logic Knowledge Bases;
 - (2) Embedding-based Rational Inconsistency-tolerant Reasoning in Description Logics;
 - (3) Knowledge Embedding via Incorporating Extensional and Intensional Knowledge.

INDUSTRIAL INTERNSHIP

BSH Home Appliances Holding (China) Co., Ltd	Nanjing, China
<i>Intern Mentor: Rick Du, Huilong An</i>	<i>Jul. 2023 – Jun. 2024</i>
<ul style="list-style-type: none">• AI-enabled efficient R&D in Wash Machine/Dryer: Bridged the logical and casual relationships among hardware platform, program design, test standard, intermediate data and performances of Bosch and Siemens wash machines, especially, built a predictive model via deep learning to predict washing performances.	

GRANTS & AWARDS

Selected Grants	
<ul style="list-style-type: none">• Jiangsu Province University Student Innovation and Entrepreneurship Project Fund (< 5%)	
Role: Lead Value: 8000 CNY (\approx 1067 EUR)	Jul. 2022 – May. 2023
Selected Awards	
<ul style="list-style-type: none">• Huawei Scholarship	Dec. 2022
<ul style="list-style-type: none">• First Prize in Jiangsu Province University Students' Advanced Mathematics Competition	Jun. 2021
<ul style="list-style-type: none">• First Prize in Southeast University Advanced Mathematics Competition (rank 8, 0.5%)	Apr. 2021
<ul style="list-style-type: none">• First Prize in Southeast University Programming Contest (rank 5, < 5%)	Dec. 2020
<ul style="list-style-type: none">• Silver Medal in China Southeast Mathematical Olympiad	Jul. 2019
<ul style="list-style-type: none">• Second Prize in National High School Mathematics League	Sep. 2018, Sep. 2019

TEACHING & EXTRACURRICULAR

Student lecturer for the course <i>An Entertaining Introduction to AI at the Second Class for Students</i>	
(1) Delivered lectures on Natural Language Processing, Web Data Management & Knowledge Graphs;	
(2) Provided tutorials to help non-CS majors install and use tools such as Conda, Jupyter, Git, Linux and Shell.	
	Sep. 2022 – Dec. 2022, Sep. 2023 – Dec. 2023
Engineering leader & co-founder of AI Association of Southeast University [SEU-131AIClub]	
(1) Hosted AIGC competitions annually: built platform, secured corporate compute sponsorship, promoted public voting;	
(2) Offered courses in <i>Second Class for Students</i> described above, partnering with the Department of Computer Science;	
(3) Organized academic/engineering seminars, tutorials and final-exam review sessions open to all department students.	
	May 2022 – Jun. 2023
Study advisor for freshman undergraduates	Sep. 2022 – Jun. 2023

SKILLS

Programming: Python (PyTorch), C/C++, Triton, Java, etc.	
Tools: VS Code, Jupyter Notebook, Shell, Git, L ^A T _E X, Markdown, etc.	
Languages: Chinese (Native), English (Fluent, IELTS 7.5).	