Keyu Wang

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EDUCATION

University of Tuebingen   Tuebingen, Germany
M.Sc. in Machine Learning   *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   Nanjing, China
B.Eng. in Artificial Intelligence   *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, Arithmetic 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   Tuebingen, Germany
Research intern | Supervisor: Dr. Shiwei Liu   *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   Nanjing, China
Research intern | Supervisor: Prof. Dr. Guilin Qi   *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 ontolgies.
- 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
Intern | Mentor: Rick Du, Huilong An   *Jul. 2023 – Jun. 2024*
- **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

- **Jiangsu Province University Student Innovation and Entrepreneurship Project Fund** ($< 5\%$)
  Role: Lead | Value: 8000 CNY ($\approx$ 1067 EUR)   Jul. 2022 – May. 2023

Selected Awards

- **Huawei Scholarship**   Dec. 2022
- **First Prize in Jiangsu Province University Students' Advanced Mathematics Competition**   Jun. 2021
- **First Prize in Southeast University Advanced Mathematics Competition** (rank 8, 0.4%)   Apr. 2021
- **First Prize in Southeast University Programming Contest** (rank 5, $< 5\%$)   Dec. 2020
- **Silver Medal in China Southeast Mathematical Olympiad**   Jul. 2019
- **Second Prize in National High School Mathematics League**   Sep. 2018, Sep. 2019

Teaching & Extracurricular

Student lecturer for the course *An Entertaining Introduction to Artificial Intelligence* at *the Second Class for Students*
(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 Artificial Intelligence Association of Southeast University [SEU-131AIClub]
(1) Hosted AIGC competition anually: built platform, secured corporate compute sponsorship, promoted public voting;
(2) Offered courses in *Second Class for Students* 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, LaTeX, MarkDown, etc.

Languages: Chinese (Native), English (Fluent, IELTS 7.5).