

TUM | TUM-IAS | Deutsches Museum | Hochschule für Philosophie | Alma Mater Europaea
- ECH European Academy of Sciences and Arts |
Generously supported by Udo Keller Foundation

Monday, 31 August - Friday, 4 September 2026

Limits of Artificial Intelligence

Register at: iris.zezelj@tum.de | Registration Deadline: 23 August 2026

Organizers:

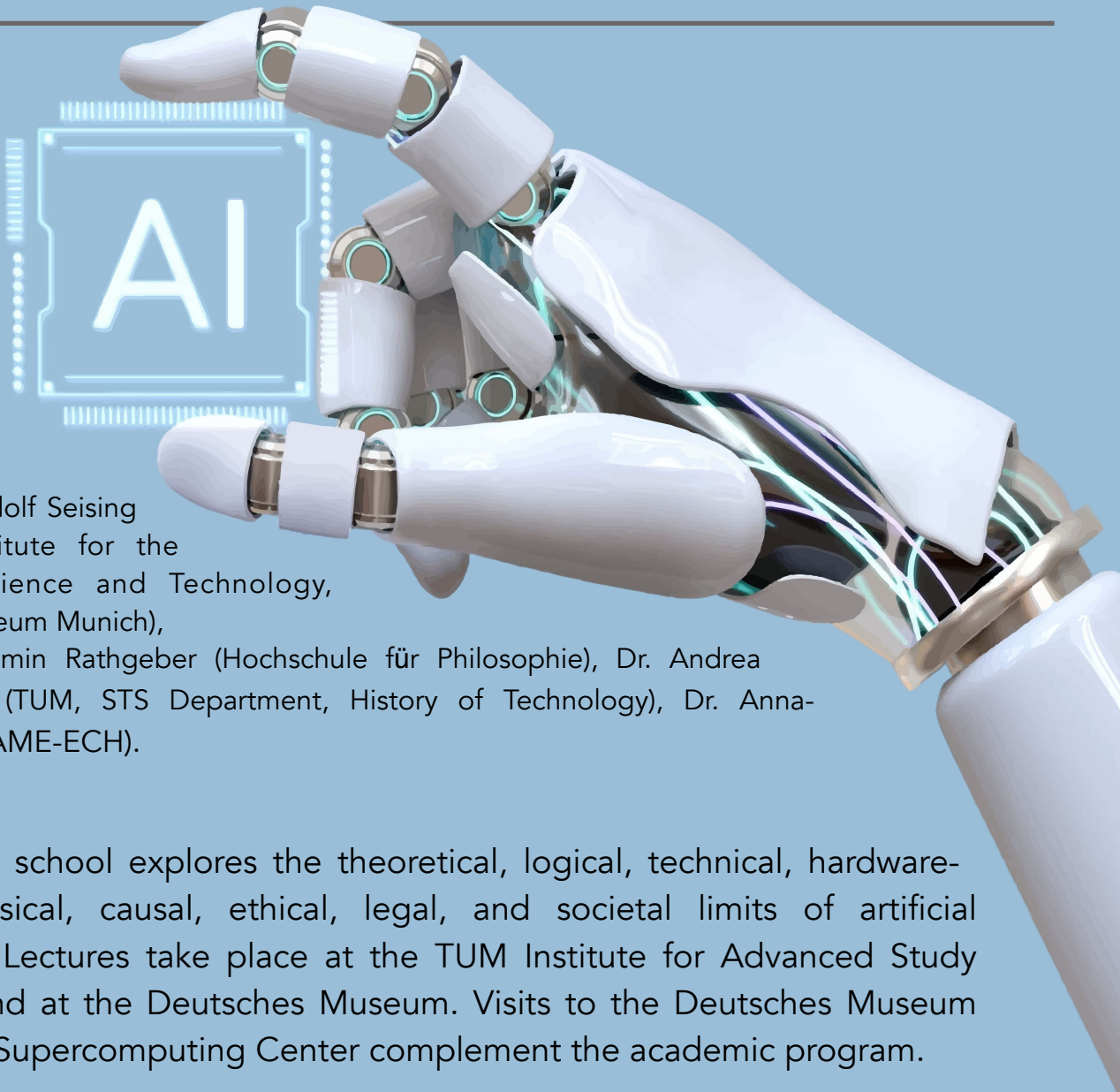
Prof. Dr. Stefania Centrone (TUM), in cooperation with PD Dr. Ulf Hashagen and PD Dr. Rudolf Seising (Research Institute for the History of Science and Technology, Deutsches Museum Munich), Prof. Dr. Benjamin Rathgeber (Hochschule für Philosophie), Dr. Andrea Reichenberger (TUM, STS Department, History of Technology), Dr. Anna-Vanadis Faix (AME-ECH).

Scope

This summer school explores the theoretical, logical, technical, hardware-related, physical, causal, ethical, legal, and societal limits of artificial intelligence. Lectures take place at the TUM Institute for Advanced Study (TUM-IAS) and at the Deutsches Museum. Visits to the Deutsches Museum and the LRZ Supercomputing Center complement the academic program.

Location

TUM Institut for Advanced Study (IAS), Lichtenbergstraße 2a, 85748 Garching bei München.



Schedule

Monday — Opening, Logical and Theoretical Limits, Humanoid Robotics, Computer Architecture

Time	Session
09:00–09:45	Michael Molls — Opening IAS
09:45–10:30	Stefania Centrone — Logical Limits I
10:30–10:45	Coffee Break
10:45–11:30	Klaus Mainzer — Theoretical Limits I
11:30–12:15	Hendrik Poschmann (Hochschule Niederrhein) — Humanoid Robotics: Limits of AI I
12:30–13:45	Lunch
13:45–14:30	Gordon Cheng — Exploring Limits in Embodied AI I
14:30–14:45	Coffee Break
14:45–15:30	Klaus Mainzer — Theoretical Limits II

Tuesday — Logical, Technical, Robotics + Visit: Deutsches Museum

Time	Session
09:00–09:45	Stefania Centrone — Logical Limits II
09:45–10:30	Hendrik Poschmann (Hochschule Niederrhein) — Humanoid Robotics: Limits II
10:30–11:00	Coffee Break
11:00–11:45	Gordon Cheng — Exploring Limits in Embodied AI II
11:45–12:30	Benjamin Rathgeber — Technical Limits I
12:30–13:45	Lunch
14:00–15:30	Visit: Deutsches Museum (AI & Computing Collections)

Wednesday — Ethical I, Technical II, Hardware Limits

Time	Session
09:30–10:15	Benjamin Rathgeber — Technical Limits II
10:15–10:30	Coffee Break
10:30–11:15	Jörg Wernecke — Ethical Limits I
11:15–12:00	Ulf Hashagen — Hardware Constraints I
12:00–13:15	Lunch
13:15–14:00	Ulf Hashagen — Hardware Constraints II
14:00–14:15	Coffee Break
Parallel Sessions	
14:15–15:00	Group Work: Technical and Hardware Limits
15:00–16:00	Group Work - Anna-Vanadis Faix: Ethical Limits

Thursday — Physical/Causal, Quantum, Ethical II, Societal + Visit: LRZ

Time	Session
09:30–10:15	Michael Decker — AI and Robotics - Limits and Chances
10:15–10:30	Coffee Break
10:30–11:15	Roberto Giuntini — Quantum Limits I
11:15–12:00	Jörg Wernecke — Ethical Limits II
12:00–12:45	Sergii Kyrychuk — Artificial Intelligence and Technocratic Utopia: The Kyiv School of Cybernetics
12:45–13:15	Lunch
13:15–15:00	Visit: LRZ Supercomputing Center –Max 30 participants

Friday — Physical/Causal II, Quantum II, Legal II, Societal II

Time	Session
09:30–10:15	Michael Decker — The Perspective of Technology Assessment
10:15–10:30	Coffee Break
10:30–11:15	Roberto Giuntini — Quantum Limits II
11:15–12:00	Rudolf Seising — Limits of AI - Yesterday
12:00–12:45	Andrea Reichenberger — Societal Limits of AI
12:45–13:45	Lunch
13:45–14:30	Rudolf Seising — Limits of AI - Today
14:30–14:45	Coffee Break
14:45–16:15	Group Work – Anna-Vanadis Faix: Integrating the Limits (Together Session)

Examination Requirements (Prüfungsleistung 6 ECTS)

Hochschule für Philosophie:

Bachelor's seminar paper: 28,800–43,200 characters.

Extended Master's seminar paper (20–24 pages): 48,000–57,600 characters. The paper must discuss three different types of limits of AI and explicitly refer to the lectures associated with each of these limits.

Deadline: End of the Winter Semester 2026/2027.

TUM

Oral examination and in-depth discussion of three different types of limits of AI, with explicit reference to three topics related to the lectures associated with each of these limits. Deadline: End of the Summer Semester 2026.

All participating students will receive a **Diploma in AI** from Alma Mater Europaea - ECH upon successful participation.

Registration deadline for the Summer School: 23 August 2026 (until 23:59).

No registration will be accepted after this deadline.

Participation in the **LRZ Supercomputing Center visit is limited to 30 participants.**

Registration must be completed by **23 August 2026.**

Invited Speakers & Organizing Committee

Stefania Centrone is Professor of Philosophy and Theory of Science at the Technical University of Munich (TUM School of Social Sciences and Technology); works on logic and AI.

Gordon Cheng is Professor s at the TUM, where he holds the Chair of Cognitive Systems and serves as Director of the Institute for Cognitive Systems (ICS). His research focuses on humanoid robotics, neurorobotics, neuroengineering, and human-robot interaction.

Michael Decker is the Director General of the Deutsches Museum and holds the Oskar von Miller Chair of Science Communication at the TUM.

Anna-Vanadis Faix is CEO of Alma Mater Europaea – ECH, Assist. Prof. (AMEU) and Lecturer at the University of Tübingen; works on rationality, ethics, and innovation.

Roberto Giuntini is Professor of Logic and Philosophy of Science at the University of Cagliari and alumnus of the Institute for Advanced Study of TUM; works on foundations of quantum mechanics and non-classical logics.

Ulf Hashagen is Director of the Research Institute at the Deutsches Museum and Privatdozent at the LMU; works on history of computing.

Sergii Kyrychuk received his Master's degree in Sociology from the National Technical University of Ukraine in Kyiv in 2005. His research focuses on the philosophy and history of artificial intelligence, with particular emphasis on the Kyiv School of Cybernetics.

Klaus Mainzer is TUM Emeritus of Excellence and President of the European Academy of Sciences and Arts; works on complexity and AI.

Michael Molls is TUM Emeritus of Excellence, former Chair of Radiation Oncology, and Director of the TUM Institute for Advanced Study; works on the topic of sustainability included the field of public health and oncology.

Hendrik Poschmann is Professor at Hochschule Niederrhein; works on humanoid robotics and AI systems.

Benjamin Rathgeber is Professor at the Hochschule für Philosophie München; works on philosophy of AI and technology.

Andrea Reichenberger is Senior Researcher at the Technical University of Munich; works on history and philosophy of computing and AI.

Rudolf Seising is with the Research Institute for History of Science and Technology of the Deutsches Museum, Munich and Privatdozent at the LMU; works on AI history and fuzzy logic.

Klaus Vieweg is Professor of Law at FAU Erlangen–Nürnberg, member of acatech - the German Academy of Science and Engineering; works on law, technology, and digital regulation.

Jörg Wernecke is Senior Lecturer at the Technical University of Munich; works on ethics and responsibility in AI.