

DATA, KNOWLEDGE, AND CONTEXT IN MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE

Lamarr Institute Lecture Series Winter Semester 2025/2026

DESCRIPTION

The lecture series provides an overview of cutting-edge research in **triangular AI**, which combines a data-intensive approach with human knowledge and context as two additional powerful sources of intelligence. Methods are examined for integrating knowledge from various sources such as previous experience, informed simulations, mathematical descriptions of physical laws, and explicit knowledge provided by humans. The series also explores methods for exploiting the resources of the open, variable contexts in which the system operates, such as active sensing, experimentation and dynamic multimodal interaction with humans. Lectures will also examine several interdisciplinary application areas for triangular AI, as well as its potential for achieving AI that is ethically informed and trustworthy for human users.

Topics in the lecture series include:

- Trustworthy AI
- Resource-Aware Machine Learning
- Hybrid Machine Learning
- Human-Centered AI Systems
- Embodied AI
- Natural Language Processing
- AI in Planning & Logistics
- AI in Life Sciences & Healthcare
- AI in Physics
- AI in Industry & Production

INFORMATION

Lectures will be given by researchers in the Lamarr Institute for Machine Learning and Artificial Intelligence at the University of Bonn and the Technical University of Dortmund. Lectures will alternate between the two locations, given in presence at one location and live-streamed to the other.

When: Fridays, 14:15-15:45 starting on **Friday, 24 October**

Where:

University of Bonn
Room 1.047
Institute for Informatics
Friedrich-Hirzebruch-Allee 8
53115 Bonn

TU Dortmund University
Room 3-303
Lamarr-Institut
Joseph-von-Fraunhofer-Str. 25
44227 Dortmund

CONTACT

For questions, please contact the lecture series coordinators: Brendan Balcerak Jackson (bbalcera@cs.uni-bonn.de) and Vanessa Faber (vanessa.faber@tu-dortmund.de).

INVITATION

Dear students,

We warmly invite you to take part in the **Lamarr Institute Lecture Series**, offered in a **unique format**: The event takes place simultaneously on-site at two universities: the University of Bonn and TU Dortmund.



When?

Every Friday from 2:00 PM to 4:00 PM c.t.



Where?

In-person participation at **the University of Bonn** or **TU Dortmund University**

University of Bonn
Room 1.047
Institute for Informatics
Friedrich-Hirzebruch-Allee 8
53115 Bonn

TU Dortmund University
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44227 Dortmund

Thanks to the **cross-location hybrid format**, lectures are held alternately at one of the two sites and **simultaneously streamed live to the other campus**. The lecture will be held in English.



What's it about?

This lecture series offers insightful and engaging talks on the research areas of the Lamarr Institute.

Experts from various disciplines will present current developments in Artificial Intelligence (AI) and Machine Learning (ML) – practical, interdisciplinary, and forward-thinking.



Why should you attend?

- You'll gain first-hand insights into current AI and ML research at the Lamarr Institute.
- The series highlights how interdisciplinary, practical, and socially relevant modern AI research is.
- You'll receive valuable input for planning your studies, such as choosing specialization modules, projects, or seminars.
- Experience how cross-university collaboration works, a model that's increasingly important in both research and industry.
- Benefit from a diverse program with a variety of speakers and research topics.
- There's no exam pressure – it's all about curiosity, orientation, and inspiration.

Join us and discover the diversity of the AI research landscape – live, in person, and across campuses.

We look forward to seeing you there!

Best regards,

Your Lamarr Team