

CHRISTIAN INTERNÒ

AI Researcher

Contact: @ christian.interno@uni-bielefeld.de / christianintern17@gmail.com +39 3409804214 Address: Festr. 19 Frankfurt (DE)
📌 LinkedIn: christian-interno 📌 GitHub: ChristianInterno 📌 Scholar: Christian Internò ✖ ChrisInterno

RESEARCH INTERESTS

My research focuses on machine learning in sensitive & scientific domains. Specifically, I investigate how manifold-constrained representations and generative models can facilitate physical encoding and plausibility for application in scientific domain.

EXPERIENCE

University of Oxford

📅 Jun 2026 – Oct 2026 📍 Oxford, UK Visiting Fellow

Group: Engineering Science & Torr Vision Group **Supervisor:** Philip Torr
Temporal feature representation geometries for physics-based neural models applied to complex systems modelling and scientific discovery [1, 2].

Honda Research Institute EU

📅 Mar 2023 – Present 📍 Frankfurt, Germany Researcher

Group: Knowledge Representation Group **Supervisor:** Markus Olhofer
Physical understanding and interpretability of neural network representations [3, 4]. Foundation models emergent capability [11]. Distributed and federated learning for systems optimization and medical imaging [5, 6, 7], [12, 13, 14, 8].

Cold Spring Harbor Laboratory

📅 Oct 2024 – Apr 2025 📍 New York, US Researcher

Group: NeuroAI **Supervisor:** David Klindt
Representation geometry analysis for AI-generated video detection via perceptual straightening [3]. Non-invasive probing of physical-law encoding in world models [4].

Leiden University (LIACS)

📅 Jan 2024 – Apr 2024 📍 Leiden, NL Visiting Researcher

Group: Natural Computing Group **Supervisor:** Elena Raponi & Thomas Bäck
Federated neural pruning [13] and transfer learning [8] for efficient distributed learning.

EDUCATION

Bielefeld University (CITEC)

📅 2023 – 2026 📍 Bielefeld, DE Ph.D. Machine Learning

Dissertation: Collaborative Learning for Global System Optimization.
Affiliated with the Center for Cognitive Interaction Technology (CITEC) in the Machine Learning Group, funded by the Honda Research Institute Europe.
Supervisor: Barbara Hammer **Group:** Machine Learning Group

University of Milan-Bicocca

📅 Sep 2020 – Dec 2022 📍 Milan, Italy M.Sc. Data Science

Grade: 6/6 Cum laude (with distinction)
M.Sc. Thesis: ANNs for Energy Signal Disentanglement with Physics Simulation Data [9]
Supervisors: Sebastian Schmitt & Andrea Castellani & Fabio Stella
Group: System Optimization

Bielefeld University (Germany)

📅 Sep 2016 – Jul 2020 📍 Brescia, Italy Exchange Program
Project: Question-Answering Model for Schizophrenia Symptoms and Their Impact on Daily Life using Mental Health Forums Data [10].
Supervisor: Philipp Cimiano **Grade:** 6/6

University of Brescia

📅 Sep 2016 – Jul 2020 📍 Brescia, Italy B.Sc. Statistics & Economics

Relevant courses: Data Analysis, Multivariate Statistics, Game Theory

AWARDS & ACTIVITIES

Scholarships:

HONDA Research Scholarship 2023–2026
Fully funded Ph.D. position
Erasmus+ Mobility Stipend 2021–2022
Exchange at Bielefeld University
Italian National Scholarship 2019–2022
Merit-based funding, University of Milan-Bicocca

ML Schools:

OIST ML Summer School 2024
Okinawa Institute of Science and Technology (OIST)
Oxford ML Summer School 2023
Oxford University, Mathematical Institute

Competitions:

Falling Walls Lab 2021
Pitched an idea on digital cultural heritage preservation.
Switch2Product 2021
"Pitched idea for innovation incubator."
STARTCUP Lombardia 2021
Regional start-up competition finalist.

Mentoring & Supervision:

Jumpei Yamaguchi (MS student) 2025
Tokyo Institute of Technology @ Honda Research [4]
Andrea Moleri (MS student) 2025
Thesis [6, 7], University of Milan-Bicocca @ Honda Research

Volunteering:

Africathletics ONLUS 2024
Sports coaching and classroom teaching in Malawi
Sister Sacramentine, Brazil 2019
Educational support for individuals with psychomotor disabilities in Salvador de Bahia
Sister Sacramentine, Malawi 2018
Community teaching and youth sports programmes

LANGUAGES

Italian: Native | *La mia lingua madre.*
English: Fluent | *My daily language since 2020.*
German: Beginner | *Ich lerne noch.*
French: Beginner | *Je m'engage à apprendre.*

REFEREES

Dr. Barbara Hammer CITEC
@ bhammer@techfak.uni-bielefeld.de
Dr. David Klindt Cold Spring Harbor Laboratory
@ klindt@cshl.edu
Dr. Markus Olhofer HONDA Research
@ markus.olhofer@honda-ri.de
Dr. Robert Geirhos Google DeepMind
@ geirhos@google.com

PUBLICATIONS

Full Articles

[1] **Christian Internò**, Alexander Pondaven, Habon Issa, Fabio Pizzati, Francesco Pinto, Markus Olhofer, Ivan Laptev, Philip Torr, Eero P Simoncelli, Barbara Hammer, and David Klindt. Geophys: The geometry of physical plausibility. In *Under Review at NeurIPS2026*, 2026.

[2] Nadir Kutluozen, **Christian Internò**, and David Klindt. Is a linear probe evidence of a linear representation? In *Under Review at NeurIPS2026*, 2026.

[3] **Christian Internò**, Robert Geirhos, Markus Olhofer, Sunny Liu, Barbara Hammer, and David Klindt. AI-generated video detection via perceptual straightening. In *The Thirty-ninth Annual Conference on Neural Information Processing Systems, (NeurIPS)*, 2025.

[4] **Christian Internò**, Jumpei Yamaguchi, Loren Amdahl-Culleton, Markus Olhofer, David Klindt, and Barbara Hammer. The observer effect in world models: Invasive adaptation corrupts latent physics, 2026, Presented at the World Modelling Workshop, MilaAI. (Under review).

[5] **Christian Internò**, Elena Raponi, Ali Raza, Niki van Stein, Thomas Bäck, Markus Olhofer, Yaochu Jin, and Barbara Hammer. Pruning federated models through loss landscape analysis and client agreement scoring. *IEEE Internet of Things Journal*, 2026.

[6] **Christian Internò**, Andrea Moleri, Markus Olhofer, and Barbara Hammer. Geodesic-SVDD latent mixup for one-shot distributed tabular learning. In *International Joint Conference on Neural Networks (IJCNN)*, 2026.

[7] Andrea Moleri*, **Christian Internò***, Ali Raza, Markus Olhofer, David Klindt, Fabio Stella, and Barbara Hammer. FederatedFactory: Generative one-shot learning for extremely non-IID distributed scenarios, 2026. (Under Review).

[8] **Christian Internò**, Markus Olhofer, Yaochu Jin, and Barbara Hammer. Federated loss exploration for improved convergence on non-iid data. In *International Joint Conference on Neural Networks (IJCNN)*, 2024.

[9] **Christian Internò**, Andrea Castellani, Sebastian Schmitt, Fabio Stella, and Barbara Hammer. Appliance modulated data augmentation is enough for industrial nilm zero-shot learning, 2025. (Under Review).

[10] **Christian Internò** and Eloisa Ambrosini. Question-answering model for schizophrenia symptoms and their impact on daily life using mental health forums data, 2023.

Workshop Articles

[11] Riccardo Cadei* and **Christian Internò***. The narcissus hypothesis: Descending to the rung of illusion. In *NeurIPS 2025 Workshop on Evaluating the Evolving LLM Lifecycle: Benchmarks, Emergent Abilities, and Scaling*, 2025.

[12] Nergiz Yuca, **Christian Internò**, Nikolay Matyunin, Markus Olhofer, Barbara Hammer, and Stefan Katzenbeisser. PPFLex: Securing non-IID optimization in federated learning via MPC. In *Workshop on Federated Learning for Critical Applications (FLCA), AAAI*, 2026.

[13] **Christian Internò**, Elena Raponi, Niki van Stein, Thomas Bäck, Markus Olhofer, Yaochu Jin, and Barbara Hammer. Adaptive hybrid model pruning in federated learning through loss exploration. In *Oral @ Workshop on Federated Foundation Models, NeurIPS 2024*.

[14] **Christian Internò**, Elena Raponi, Niki van Stein, Thomas Bäck, Markus Olhofer, Yaochu Jin, and Barbara Hammer. Adaptive model pruning in federated learning through loss exploration. In *Workshop on Advancing Neural Network Training, ICML*, 2024.

* Co-first authors.

OPEN SOURCE

ChristianInternò/FedLex	Federated loss exploration for non-IID convergence (IJCNN 2024)
ChristianInternò/ReStrav	AI-generated video detection via perceptual straightening (NeurIPS 2025)
ChristianInternò/SIDED	Synthetic industrial dataset for energy disaggregation (NILMTK-compatible)
ChristianInternò/AutoFLIP	Adaptive federated model pruning through loss exploration
andreamoleri/FederatedFactory	Generative one-shot FL for extreme non-IID scenarios
nergiz-ue/PPFLex	Privacy-preserving federated learning via MPC (AAAI WS 2026)

REVIEWING

NeurIPS, ICML (Nominated as Gold Reviewer), IJCNN, IEEE IoT, World Modelling Workshop (Mila).

TALKS

Oral, *International Workshop on Federated Foundation Models*, NeurIPS 2024
HRI *European Graduate Network Symposium*, HONDA Research, 2024
ML Seminar on *Signal Disaggregation*, University of Milan-Bicocca, 2022

OTHER INTERESTS

Sport: Weightlifting, Tennis @tennistalker, Running @Strava, Surfing, Skiing.