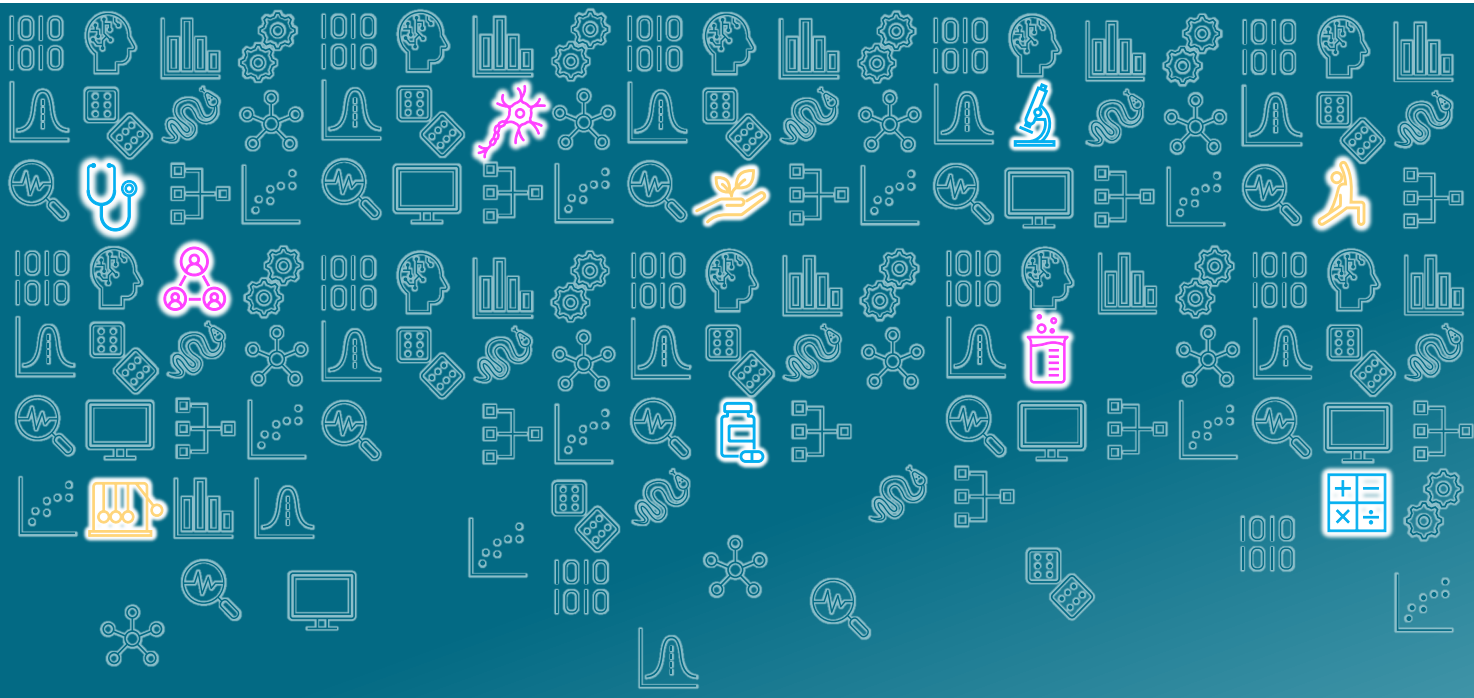

Connecting Disciplines

Through Shared Methods

CDSC Kick-off, 9 Feb 2026, Schloss Aula and Foyer

PROGRAM & LIST OF POSTERS

Data Science | AI & Machine Learning | Scientific Computing | Mathematical Modeling | Complex Systems

Universität Münster

Center for Data Science and Complexity

PROGRAM

09.00 AM | AULA
OPENING with a welcome address by Rector Prof. Johannes Wessels
Prof. Uwe Thiele

09.10 AM | AULA
Introducing the CDSC: Who We Are, What We Do, Where We're Heading
Dr. Oliver Kamps

09.40 AM | AULA
KEYNOTE
Human Centered Twinned AI
Prof. Antonio Krüger (Deutsches Forschungszentrum für Künstliche Intelligenz)

10.30 AM | FOYER
COFFEE BREAK

11.00 AM | AULA
KEYNOTES
Generalization and Errors of Humans and Machines
Prof. Barbara Hammer (Universität Bielefeld)

Towards an Artificial Muse for New Ideas in Physics
Prof. Mario Krenn (Universität Tübingen)

12.40 PM | FOYER
LUNCH BREAK

02.00 PM | AULA
KEYNOTE
Shaping the Future of AI: From Mathematical Foundations to Reliable and Sustainable Next-Generation Computing
Prof. Gitta Kutyniok (LMU München)

02.50 PM | FOYER
POSTER EXPO AND NETWORKING SESSION
Expert discussions, peer exchange and interdisciplinary networking over coffee and cookies

SIDE PROGRAM
Spotlights on Sustainability: Insights and Ideas from Across Campus
Various contributors

| S 151
Interactive AI in VR: Hands-On Immersive Medical Training
Research group of Prof. Benjamin Risse

05.00 PM | AULA
KEYNOTE
Machine Learning for Earth System Science
Prof. Niklas Boers (TU München)

05.50 PM | AULA
CLOSING REMARKS
Dr. Oliver Kamps

06.00 PM | AULA
END OF THE EVENT

LIST OF POSTERS

The POSTER EXPO & NETWORKING SESSION is scheduled for from 2:50 to 5:00 pm in the Foyer. Posters will be available for preview during the lunch break.

Alongside the main category, Connecting Disciplines through Shared Methods, the poster session features the sections Spotlights on Sustainability and Meet Our Campus Connections.

CONNECTING DISCIPLINES THROUGH SHARED METHODS

Connecting Disciplines Through Shared Methods brings together researchers from a wide range of disciplines who apply, advance, or examine the theoretical foundations of methods from data science, artificial intelligence and machine learning, mathematical modeling, scientific computing, and complex systems.

CD.1 **Molecular Machine Learning and Data-Driven Drug Development**
Oliver Koch
Institute for Pharmaceutical and Medicinal Chemistry

CD.2 **Prediction of Antimicrobial Resistance with Machine Learning**
Dominic Enders[1], Raphael Koch[2], Frieder Schaumburg[1], Antje Westendorf[1], Niklas Wiesmann[1]
[1] Institute of Medical Microbiology
[2] Institute of Biostatistics and Clinical Research

CD.3 **Machine Learning and Data Engineering**
Fabian Gieseke
Department of Information Systems

CD.4 **Modeling and Control of Complex Systems**
Svetlana Gurevich
Institute for Theoretical Physics

CD.5 **Machine Learning for Understanding Complex Molecular Systems in Simulations and Experiments**
Mirko Fischer, Andreas Heuer, David Bienek, Katharina Kintrup
Institute for Physical Chemistry

CD.6 **Learning Based Approximation Methods in Scientific Computing**
Mario Ohlberger
Institute for Analysis and Numerics

CD.7 **Bubbles in Inviscid Fluids**
Björn Gebhard, Yuanjiang Han, Lukas Niebel, Christian Seis
Institute for Analysis and Numerics

CD.8 **From Molecules to Models: Interfacing Organic Chemistry & Data Science**
Frank Glorius, Niklas Hölter, Jan Christopher Spies, Florian Boser, Rana Debanjan, Leon Schlosser, Nick Wierich
Institute of Organic Chemistry

CD.9 **Analyzing Social Interaction Using Computer Vision**
Nicolas Legewie
Sociology Department

CD.10 **Measuring the Communication of Threat**
Bernd Schlipphak[1], Mitja Back[2], Johannes Leonhard Klinz[2]
[1] *Department of Political Science*
[2] *Department of Psychology*

CD.11 **Complex Systems and Machine Learning**
Oliver Kamps, Katrin Schmietendorf, Oliver Mai, Tim Kroll
Center for Data Science and Complexity

CD.12 **Self-organization and Complexity**
Uwe Thiele and group members
Institute for Theoretical Physics

CD.13 **Bridging Disciplines: From Text Mining and Complex Systems to the Human Microbiome**
Sven Kleine Bardenhorst, Daniel Hagenfeld, André Karch, Nicole Rübsamen
Institute for Epidemiology and Social Medicine

CD.14 **New Non-invasive and Machine-learning Based Diagnostic Approaches for Focal Epilepsy**
Lala Jafarova, Yvonne Buschermöhle, Malte Bernhard Höltershinken, Peppi Schulz, Demet Yesil-Bas, Carsten Wolters
Institute for Biomagnetism and Biosignalanalysis

CD.15 **Machine Learning for Spatial Modeling Across Disciplines**
Hanna Meyer
Institute of Landscape Ecology

CD.16 **Safe Learning in Hybrid Systems Using Contracts**
Julius Adelt, Pauline Anne Blohm, Paula Herber, Mathis Niehage, Anna Remke
Computer Science Department

CD.17 **From Materials Science to AI Hardware Design: Exploring the Potential of Opto-electronic Phase Change Devices for In-Memory Computing**
Niklas Vollmar, Nils Holle, Nils Weber, Martin Salinga
Institute of Materials Physics

CD.18 **Deep Learning Based Design of Nanophotonic Circuit Components**
Marlon Becker, Marco Butz, David Lemli, Carsten Schuck
Department for Quantum Technology

CD.19 **Parametrization of the Homogenous Electron Gas via Symbolic Regression**
Johannes Neugebauer
Institute of Organic Chemistry and Center for Multiscale Theory and Computation

CD.20 **AI-assisted Ultrafast and Precise Monte Carlo Event Generation for CERN LHC Physics**
Tomas Jezo, Michael Klasen, Jan-Christopher Knetsch
Institute for Theoretical Physics

CD.21 **Mathematical Modeling of Biophysical Complexity**
Diana Khoromskaia, Stefan Niehaus
Institute for Theoretical Physics

CD.22 **User-centric Visual Data Analysis**
Lars Linsen
Institute of Computer Science

CD.23 **Fractal Embeddings: Chaos Game Representation for Sequence Analysis**
Hannah Franziska Löchel
Institute for Medical Informatics

CD.24 **AI for Archaeological Remote Sensing: Identifying Ancient Underground Aqueduct Systems in Declassified Spy Imagery**
Samran Asiabani, Janoscha Kreppner
Institute for Ancient Oriental Studies and Near Eastern Archaeology

CD.25 **Machine Learning in Biomedicine**
Marius Welzel, Sandra Clemens, Leon Fehse, Michael Fujarski, Arsam Tajabadi, Dominik Heider
Institute for Medical Informatics

CD.26 **CausalAI4Health: Advancing Trustworthy and Responsible Causal Artificial Intelligence for Precision Medicine and Public Health**
Adèle Helena Ribeiro, Dominik Heider
Institute for Medical Informatics

CD.27 **Data Science in Geochemistry: CODA and Inverse Methods to Quantify Earth Evolution**
Zachary T. Eriksen, Marthe Klöcking, Andreas Stracke
Institute for Mineralogy

CD.28 **Pairing Dialogic Syntax with Machine Learning: Dialogic Resonance and Stance Alignment in German Conversation**
Alexander Zahrer, Nele Brathe
Institute for Mineralogy

CD.29 **Using the Complex Dynamic Systems Theory to Explain Processes of Language Learning**
Ulrike Gut, Romana Kopeckova
English Department

CD.30 **Enabling Predictive Maintenance with Artificial Intelligence**
Bernd Hellingrath
Department of Information Systems

CD.31 **MDPath: Unraveling Allosteric Communication Paths of Drug Targets Through Molecular Dynamics Simulations**
Marvin Taterra, Marcel Bermúdez, Niklas Piet Doering, Gerhard Wolber
Institute of Pharmaceutical and Medicinal Chemistry

CD.32 **Digital Media & Computational Methods**
Georg Hertkorn, Lennart Höfig, Jakob Jünger, Katharina Maubach
Institute of Communication Studies

CD.33 **Differential Geometry Meets Applied Mathematics – Shape Spaces and Manifold Learning**
Sascha Beutler, Juliane Braunsmann
Institute for Computational and Applied Mathematic

CD.34 **Artificial Intelligence in Social Media: Automated Content Production and Disinformation Detection**
Christian Grimme, Marie Griesbach, Janina Lütke-Stockdiek, Lennart Schäpermeier, Lucas Stampe
Department for Information Systems

CD.35 **AI-assisted Process Mining for Context-sensitive Analysis Support**
Paul Brützke, Robin Killewald, Sandro Franzoi, Jan vom Brocke
Department for Information Systems

CD.36 **Random Label Prediction Heads for Studying and Controlling Memorization in Deep Neural Networks**
Marlon Becker, Jonas Konrad, Luis Garcia Rodriguez, Benjamin Risse
Institute for Geoinformatics

CD.37 **Pattern Recognition and Image Analysis (PRIA) Group: Advanced AI/ML Methods and Applications**
Xiaoji Jiang
Department for Computer Science

CD.38 **LLM-Based Agent Simulations for Modeling Individual Differences and Advancing Professional Social Interactions**
Mitja Back[1], Ole Hätscher[1], Jennifer Diabel[3], Anna Junga[3], Pascal Kockwelp[2], Bernhard Marschall[3], Leon Pielage[2], Benjamin Risse[2]
[1]*Department of Psychology*
[2]*Institute for Geoinformatics*
[3]*Institute of Education and Student Affairs*

CD.39 **Efficient Simulations, Complex Models & Data-integration**
Gunnar Birke, Christian Engwer, Alexander Schell, Sinta Maria Siby
Institute of Applied Mathematics

CD.40 **Comparing Image Representations in Deep Neural Networks and Human Memories**
Charlotte Luzia Atzert, Niko Busch, Filip Děchtěrenko, Jiří Lukavský
Institute of Psychology

CD.41 **Data Science and Complexity in Movement Science**
Heiko Wagner, Myriam de Graaf et al.
Institute of Sport and Exercise Science

CD.42 **Signal Dissection and Modern Analyses for Molecular Medicine**
Michael Grau[1], Karoline Möhr[2], Peter Lenz[2], Georg Lenz[1]
[1] *Department of Medicine A for Hematology, UKM*
[2] *Department of Physics, University of Marburg*

CD.43 **Medical Machine Learning Lab**
Tim Hahn[1], Nils Winter[1], Lukas Fisch[1], Jan Ernsting[1], Keyvan Mahjoory[1], Maximilian Konowski[1], Jennifer Spanagel[1], Sarah Wellms[1]
[1] *Institute for Translational Psychiatry*

MEET OUR CAMPUS CONNECTIONS

Meet Our Campus Connections highlights partner institutions and centers that have collaborated with the CDSC (or CeNoS) in recent years, acknowledging their essential contributions to a vibrant, interdisciplinary network supporting research, teaching, and transfer.

CC.1 **The Münster Center for Open Science**
Lukas Röseler
Münster Center for Open Science (MüCOS)

CC.2 **Otto Creutzfeldt Center**
Svenja Gremmler
Otto Creutzfeldt Center for Cognitive and Behavioral Neuroscience

CC.3 **Support for Emerging Researchers – Based on Current Data**
Iva Ognjanovic
Münster Centre for Emerging Researchers (CERes)

CC.4 **Kontaktstelle Studium im Alter**
Veronika Jüttemann
Kontaktstelle Studium im Alter

CC.5 **Interdisciplinary Center for Mathematical Modeling of Infectious Disease Dynamics**
Rasmus Kristoffer Pedersen
Interdisciplinary Center for Mathematical Modeling of Infectious Disease Dynamics (IMMIDD)

CC.6 **The Center of Interdisciplinary Sustainability Studies**
Carolin Bohn, Tillmann Buttschardt, Fynn M. Schmidt
Zentrum für Interdisziplinäre Nachhaltigkeitsforschung (ZIN)

CC.7 **CMTC**
Martin Korth
Center for Multiscale Theory and Computation

CC.8 **IVV4**
Martin Korth
IVV4

CC.9 **The Center for Philosophy of Science**
Jens Lemanski and the ZfW team
Zentrum für Wissenschaftstheorie

CC.10 **incub.ai - From AI to Start-Up**
Friedrich Bach, Jonathan Wandscheer
REACH

SPOTLIGHTS ON SUSTAINABILITY: INSIGHTS AND IDEAS FROM ACROSS CAMPUS

The Spotlights on Sustainability showcase projects that explore how data science and complexity approaches help address today's sustainability challenges across environmental, social, and economic systems, alongside projects examining the double-edged implications of AI for sustainability.

SoS.1 **AI4Forest**
Fabian Gieseke
Department of Information Systems

SoS.2 **Quantifying the Impact of *k*-Anonymizing Trajectory Data on Common Traffic Management Use Cases**
Christian Fries, Jan Kettler, Christian Kray, Thorsten Passfeld, Ralf Tönjes
Institute for Geoinformatics

SoS.3 **senseBox Eye: Energy and Resource-efficient AI for IoT Applications**
Thomas Bartoschek, Fabian Gieseke, Nina Herrmann, Benjamin Karic, Paula Scharf, Angela Schwering, Jan Stenkamp
Institute for Geoinformatics

SoS.4 **Imagining Sustainable AI Beyond Tech Narratives**
Sigrid Kannengießer, Anne Mollen, Anastasia Glawatzki
Department of Communications

SoS.5 **Mapping and Explaining Grassland Biodiversity with Explainable Machine Learning to Support Sustainable Management**
Jan Linnenbrink, Maite Lezama Valdes, Marvin Ludwig, Lena Neuenkamp, Norbert Hölzel, Hanna Meyer
Institute of Landscape Ecology

SoS.6 **Resilient Healthcare in Times of Crises**
Dennis Krämer, Malina Spieker
Faculty of Education and Social Sciences

SoS.7 **Anchoring Sustainability at the CDSC: Vision and Practice Across Research, Teaching, and Transfer**
Katrin Schmietendorf, Oliver Kamps
Center for Data Science and Complexity