

NATURALISTIC NEUROSCIENCE:

FROM PERCEPTION TO ACTION AND BACK



SYMPOSIUM AT THE UNIVERSITY OF BONN

28-29 MAY 2026

HOST INSTITUTION AND SPONSORS

Our Host

This symposium is hosted by caian, University of Bonn's Centre for Artificial Intelligence and Neuroscience within the Transdisciplinary Research Area "Life and Health".



Our Sponsors

We would like to thank our sponsors for their generous support: iBehave (NRW), NeuroTech EU, and FieldLine Medical (USA).



Ministry of Culture and Science
of the State of
North Rhine-Westphalia



NeurotechEU



Co-funded by
the European Union



FieldLine
M E D I C A L

PROGRAMME

Thursday, 28 May 2025

9:30 Check-in Desk Opens
Complementary tea & coffee reception

10:00 Opening & Introduction
Dominik Bach (University of Bonn)

10:30 Session 1: Spatial Navigation
Chair: Dominik Bach (University of Bonn)

10:30 **Neil Burgess (University College London):** Using VR in Mice and Humans to Examine the Neural Integration of Environmental and Self-Motion Information

11:20 **Lukas Kunz (University Hospital Bonn):** Theta-Phase Locking of Human Neurons During the Encoding and Retrieval of Spatial Memories

11:50 **Dyutika Banerjee (University Hospital Bonn):** Probing How the Temporal Structure of Odour Plumes Informs Mouse Navigation Behaviour

12:05 Lunch Break with Poster Session 1
On Display: Posters #1 – #16

13:30 Session 2: Neurotechnology & Modelling
Chair: Tobias Rose (University Hospital Bonn)

13:30 **Gareth Barnes (University College London):** Wearable Magnetic Field Sensors for Neuroimaging

- 14:20 **Jason Kerr (Max Planck Institute for Neurobiology of Behavior – caesar):** What the Brain Sees During Predator-Prey Interactions of Sky and Ground-Based Animals
- 14:50 **Jens Tillmann (German Center for Neurodegenerative Diseases – DZNE):** Modeling Neuro–Behavioral State Dynamics from Longitudinal Multimodal Recordings

15:05 Coffee Break

15:30 Session 3: Sensorimotor Processing

Chair: Sabine Krabbe (German Center for Neurodegenerative Diseases – DZNE)

- 15:30 **Katja Reinhard (Scuola Internazionale Superiore di Studi Avanzati – SISSA):** Light and Time Shape Innate Behaviours

- 16:20 Wrap-Up

16:30 *Transfer to Off-Site Locations*

17:00 Facility Visits

Locations & Participating Labs

- **caian (Endenich):** VR Lab
- **DZNE (Duisdorf):** Movement Lab
- **IEECR (Venusberg):** Mouse Lab
- **University Hospital Bonn (Venusberg):** VR Psychotherapy Lab
- **VCI (Endenich):** Light- and VR Capture Stage

19:00 Dinner at Restaurant “Nees”

Invitation or ticket required

Friday, 29 May 2025

9:00 Session 4: Perception

Chair: Floris de Lange (Radboud University Nijmegen & University of Bonn)

9:00 **Georg Keller (Friedrich Miescher Institute for Biomedical Research – FMI Basel)**: A Cortical Circuit Approach to Psychosis

9:50 **Tobias Rose (University Hospital Bonn)**: Stability and Stabilization of the Neural Code in Sensation and Action

10:20 **Cem Uran (University Hospital Bonn & Radboud University Nijmegen)**: Behavioral and Learning Signatures of Predictive Thalamocortical Dynamics

10:35 Coffee Break

11:00 Session 5: Human Neural Recordings

Chair: Lukas Kunz (University Hospital Bonn)

11:00 **Matthias Stangl (Boston University)**: The Social Brain in Action: Cognitive Maps of Self and Others in the Real World

11:50 **Alana Darcher (University Hospital Bonn)**: Decoding Movie Content From Neuronal Population Activity in the Human Medial Temporal Lobe

12:05 **Philip Sulewski (University of Osnabrück)**: Fixation Duration on Natural Scenes Is Explained by Memory Encoding Not Processing Demand

12:20 **Pierangelo Nicolas D'Onofrio Pacheco (University of Düsseldorf)**: Distinct Neural Signatures of Tactile Bias and Sensory Uncertainty During Movement

12:35 Lunch Break with Poster Session 2

On Display: Posters #17 – #33

14:00 Session 6: Stress-Related Behaviour

Chair: Ilona Grunwald-Kadow (University of Bonn)

- 14:00 **Karin Roelofs (Radboud University Nijmegen):** Fear Behaviour from Lab to Clinic
- 14:50 **Dominik Bach (University of Bonn):** The Computational Grammar of Human Behaviour in a Biological Environment
- 15:05 **Jan Gründemann (German Center for Neurodegenerative Diseases – DZNE):** Distributed Neuronal Circuits for Aversive Learning

15:35 Coffee Break

16:00 Session 7: Clinical Neuroscience

Chair: France Rose (University of Bonn)

- 16:00 **Jennifer Faber (University Hospital Bonn & German Center for Neurodegenerative Diseases – DZNE):** Leveraging AI-Informed Motion Capturing for Digital Video-Based Movement Analysis in Neurodegeneration
- 16:30 **Melissa Steininger (University of Bonn & University Hospital Bonn):** Toward Interpretable Cognitive Screening in Epilepsy: Eye Tracking in a VR Trail Making Test
- 16:45 Closing Remarks and Farewell**
- 17:00 End of Event

ORGANIZATIONAL NOTES

Directions:

<https://www.nn2026.uni-bonn.de/en/directions>

Location:

If not otherwise specified, all events of NN2026 take place on Campus Poppelsdorf at the “Rotation Building” (Käthe-Kümmel-Str. 1, 53115 Bonn).

Ground Floor/ Level 0:

- Registration and Catering: Foyer and Entrance
- Keynotes and Talks: Lecture Hall, Room No. 0.056
- Accessible, gender-neutral WC

Basement/Level U1:

- Poster and Industry Exhibits: Twin Rooms No. U1.059 and U1.059
- Space for Gathering & Outdoor Seating/Access to Courtyard
- WCs

Accepted Abstracts:

A complete PDF compilation will be made available before the conference: <https://www.nn2026.uni-bonn.de/en/programme>

Contact: nn2026@uni-bonn.de

CONVENED BY

Prof. Dr. Dr. Dominik R. Bach (University of Bonn and University College London)

Dr. Sabine Krabbe (German Center for Neurodegenerative Diseases)

Prof. Dr. Floris de Lange (Radboud University Nijmegen and University of Bonn)

#NN2026

IMPRINT: ©CAIAN 2026