SMB 2025

Social & Moral Brain Seminar 2025

October 16-17, Ghent, Belgium

UNIVERSITEIT GENT

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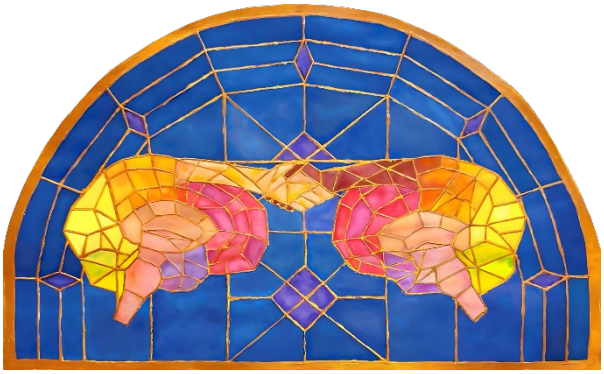


Welcome to the Social & Moral Brain Seminar

We are thrilled to launch the first edition of the **Social & Moral Brain seminar (SMB)** initiated and organized by the **Moral & Social Brain Lab** (led by Prof. Emilie Caspar) and the **Social & Cognitive Neuroscience Lab** (led by Prof. Lara Bardi).

The SMB is open to researchers in psychology, neuroscience and cognitive science, aiming to bring together experts from diverse disciplines to explore innovative perspectives in social and moral neuroscience. The primary goal of these meetings is to foster meaningful discussion between leading researchers and emerging scholars, addressing both theoretical and methodological aspects to deepen our understanding of how we perceive, interpret, and relate ourselves to others.

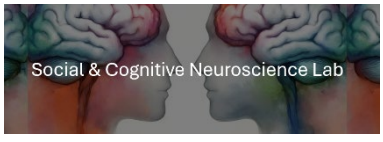
The first edition of the seminar will focus on Emotions, Others and Morality. Emotions play a crucial role in our interactions with others, as interpersonal (including moral) emotions are a major factor that drives our responses to others and regulates both prosocial and antisocial behaviours. Morality, in turn, refers to the set of rules and principles that evaluate and guide our actions towards others. The seminar features a rich scientific program, including keynote lectures, short talks, and poster sessions. Leading experts and early-career researchers will have the opportunity to share their latest findings and methodologies in an inclusive space, advancing our understanding of the neural basis of human social cognition.

Welcome to Ghent! During SMB 2025, immerse yourself in the excitement of scientific discovery and dialogue. We are looking forward to welcoming you!

SMB 2025 Organizing Committee

Yulong Huang, Eva Vives, Kai Shaman, Mathias Van der Biest
Lara Bardi & Emilie Caspar

Moral & Social Brain LAB



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INFORMATION

Seminar venue and traveling

The seminar will take place at the Ghent University Museum, located at
Karel Lodewijk Ledeganckstraat 35, 9000 Gent, Belgium

We will meet at the '**FORUM**' located on the fourth floor, which you can access using the stairs or the elevator on the ground floor.

Traveling to Ghent

By plane

Ghent can be reached by air via two main airports. The primary one is Brussels National Airport, situated approximately 70 km from Ghent. To reach Ghent from this airport, you can take either a train or taxi. For detailed flight information and travel guidance, please click here. Alternatively, you can consider Charleroi Airport, also known as Brussels-South Airport. To travel to Ghent from Charleroi Airport, you can choose a shuttle service, or Brussels City Shuttle, heading towards Brussel-Zuid/Bruxelles-Midi train station, and continue your journey to Ghent by train. Additionally, you can board Bus A to Charleroi-Sud train station and catch a train from there. If you choose the latter option, you can conveniently purchase a ticket that covers the bus fare at the vending machines located just outside the airport (Entrance 2). For more information regarding flights and travel, please click here.

By train

International train services provide a convenient way to reach Ghent. To find train schedules and purchase tickets online, visit SNCB international. From Brussels Airport, there are frequent train services connecting you to Ghent. You have the option to take a direct train to Gent-Sint-Pieters (in the direction of De Panne or Brugge) or choose airport city express to reach one of the train stations in Brussels (Brussel-Zuid/Bruxelles-Midi, Brussel-Centraal/Bruxelles-Central, or Brussel-Noord/Bruxelles-Nord). Once you arrive at a train station in Brussels, simply switch to an intercity (IC) train heading towards Ghent (directions Brugge, Knokke, Blankenberge, Oostende, all of which have stops in Ghent). You can also access Ghent from other Belgian cities easily via intercity trains. For train schedules and online ticket purchases, please visit SNCB. Ghent has two train stations, with Gent-Sint-Pieters being the primary station.

Traveling in Ghent

By bus

Ghent has an excellent public transit system, including buses. The venue can be easily reached by taking the bus to the bus stop "Gent Ottergemsesteenweg". Tickets and routes available on De Lijn.

By bike

You know... biking is in the Belgian DNA! If you want to come to the GUM by bike, we recommend using **Blue Bike** or **De Fietsambassade** bikes, that can be rented at Gent St Pieters train station or in one of their many pick-up points throughout Ghent. If you want a bike without preplanned renting, there are also (orange) bikes by Donkey Republic Bikes available that you can rent on the go using their app.

By foot

Gent is a human-size city and you can probably reach the venue by walking max. 30 minutes! Tell us if we were wrong!

Registration and Reception

All participants in our seminar will receive a personalized name badge, a reusable eco-friendly coffee cup, and an eco-friendly water bottle. To minimize waste, we will use only sustainable, reusable cups during the event.

Group Visit at GUM Botanical Garden

(Max. 50, pre-registration required)

Join us on Thursday at 17:30 for a guided group tour of the GUM Botanical Garden. The visit is free of charge and will last approximately 1.5 hours. Participation is limited to 50 people, and pre-registration is required. More information will be provided on-site.

Contact

General questions

In case you need help with anything during the conference, do not hesitate to ask any member of the organising committee. On site, you can recognize us by our badge with a blue background. You can also send us your question by email via [thesmbseminar@sciencesconf.org]

Technical issues

If you have any technical questions related to the workshop, please contact **Eva Vives** at eva.vives@ugent.be **or Yulong Huang** at yulong.huang@ugent.be

Emergency contacts

- 112 - medical help/ambulance and fire department
- 101 - police (urgent)

SPEAKERS AND ORGANISATION TEAM

LOCAL SPEAKERS – Ghent University

Dr Emilie Caspar

Dr. Lara Bardi

Dr. Suzanne Dikker

KEY SPEAKERS AT A GLANCE

Dr. Valeria Gazzola

Dr. Leo Fitouchi

Dr. Sara de Felice

Dr. Francois Quesque

MEET THE ORGANISATION TEAM

Left to Right: **Mathias Van der Biest, Yulong Huang, Eva Vives, Kai Shaman**

PROGRAM OVERVIEW

Here is an overview of the program, followed by a more detailed program for the two days. You can save the program in its image version or download the **pdf version** via our Github page.

Thursday, October 16, 2025		Friday, October 17, 2025	
08:30-09:10	Welcome Coffee & Speech	08:30 -09:00	Welcome Coffee
09:10-09:40	**Emilie Caspar** From interviews with genocide perpetrators and rescuers to the neuroscience of (dis)obedience	09:00 -09:30	**Lara Bardi** Spontaneous mentalizing: the effect of others on individual cognition
09:40 -10:40	**Keynote: Valeria Gazzola** A cross-species approach to the mechanisms of vicarious (emotional) states	09:30 -10:30	**Keynote: Sara de Felice** Learning from and with others: social interaction as a medium to acquire new knowledge
10:40 -11:00	**Coffee break**	10:30 -11:00	**Coffee break**
11:00 -12:20	**Emotions** Short Talks x 4	11:00 -12:00	**Social Cognition** Short Talks x4
12:30 -14:00	**Lunch and Poster session I**	12:20 -14:00	**Lunch and Poster session II**
14:00 -15:00	**Keynote: Leo Fitouchi** Rethinking punishment in humans	14:00 -15:00	**Keynote: François Quesque** (Trying to?) Clarify social cognition: conceptual and practical perspectives
15:00 -16:00	**Morality** Short Talks x 3	15:00 -15:40	**Social Cognition** Short Talks x2
16:00 -16:20	**Coffee break**	15:40 -16:30	**Suzanne Dikker** It Takes a Village: studying the dynamics of multigenerational social communication
16:20 -17:00	**Morality** Short Talks x 2	16:30 -17:30	**Coffee break &** **Poster session III**
17:00 -17:30	**Concluding remarks**	17:30 -17:45	**Closing and Goodbye**
17:30 -18:30	**Social event!** Museum Tour - GUM		

DAY I

Thursday, October 16, 2025

Welcome, Local Speaker & Keynote

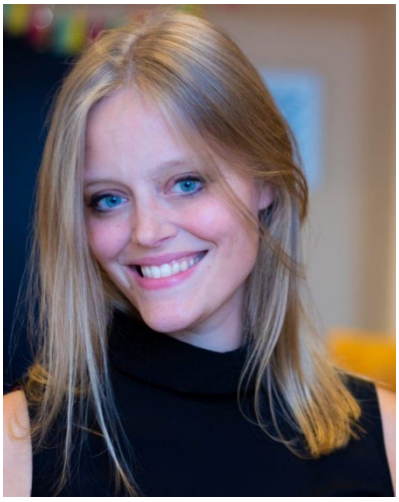
08:30 **Registration and Welcome Coffee**

09:00 **Welcome Speech**
Yulong Huang & Eva Vives & Kai Shaman & Mathias Van der Biest

09:10 **Local speaker #1**

From interviews with genocide perpetrators and rescuers to the neuroscience of (dis)obedience

Prof. Dr. Emilie Caspar
PI of Moral & Social Brain Lab, Ghent University



It is no longer necessary to establish that human beings will follow immoral orders, even in cold blood. As Howard Zinn pointed out, "historically, the most terrible things - war, genocide, and slavery - have resulted not from disobedience, but from obedience" (Zinn, 1997). Beyond historical events, experimental research has also highlighted the human tendency to obey orders that could cause serious harm to others (Milgram, 1963). Decades after Stanley Milgram's foundational studies, a neuroscientific perspective on obedience has emerged, aiming to understand how obeying orders can pave the way for moral transgressions and antisocial behavior towards others.

This talk will highlight recent research using electrophysiological techniques and neuroimaging, paralleled with interviews and experimental work conducted with former genocide perpetrators in Rwanda and Cambodia, but also with rescuers who resisted social pressure. The main neuroscience findings indicate that obedience to orders modifies cognitive and affective processes compared to freely decided actions. These findings complement the results of the qualitative interviews, where most former perpetrators, be them from Rwanda or Cambodia, reported that obedience to authority was the main factor for taking part in a genocide. These studies together aim to provide an understanding of the mechanisms associated with moral transgressions under the influence of authority.

09:40 **Keynote speaker #1**

A cross-species approach to the mechanisms of vicarious (emotional) states

Prof. Dr. Valeria Gazzola
PI of Social Brain Lab, NIN

Understanding the emotions of others often happens spontaneously, without deliberate thought. Another person's feelings can also easily influence our own, shaping how we attend to them and how we respond. But what brain mechanisms support this automatic sharing of emotions? And is this ability uniquely human, or do other species experience it as well? In my talk, I will present evidence that regions such as the anterior cingulate cortex and anterior insula are active when we share another's pain, track our motivation to help, predict the consequences of our actions in morally conflicting situations and are modulated by situational factors such as agency and responsibility. I will also show that similar regions play a causal role in harm aversion in rodents, pointing to an evolutionary continuity in how the brain processes the pain of others.

10:40 – 11:00

Coffee Break

Session Emotions – Short Talks

11:00 Talk #1

Detangling Moral Distress from a Componential Emotion Perspective

Céline Baele[1] and Johnny Fontaine[1]

[1]Ghent University, Belgium

Moral distress (MD, Jameton, 1984) refers to the psychological discomfort experienced when individuals feel unable to act in accordance with their moral values. The phenomenon, linked to diminished wellbeing and quality of care, has been extensively studied in healthcare, but the construct remains highly debated. The current study aimed to investigate the con- struct through the componential emotion approach, starting with its core appraisal: moral constraint. Key research questions were: (1) Is the appraisal of moral constraint linked to distress? (2) What is the dimensionality of emotional reactions during morally constraining events? (3) which emotion processes are mediating mechanisms for relationship between moral constraint and burnout?
Dutch-speaking Belgian healthcare professionals (n = 111) reported one work-related morally constraining episode. Following the GRID-paradigm (Gillioz et al., 2016) they rated questions on appraisals, feelings, bodily reactions, expressions, and action tendencies, and they took aggregate-level measures of moral distress (MD-APPS, Baele & Fontaine, 2021) and burnout (UBOS, Schaufeli & Van Dierendonck, 2000). Exploratory factor analyses and path analyses were conducted in SPSS and MPlus. The emotional experiences could be represented by a four-dimensional structure of distress, anger, guilt/shame, and compassion. Moral constraint was strongly associated with distress and anger, moderately with guilt/shame, but unrelated with compassion. Burnout components were differentially related to these emotion dimensions, indicating that emotional processes play different roles as mediating mechanisms.
Practical implications include the potential value of emotion-focused interventions aimed at developing emotional competence to mitigate MD, reduce burnout, and enhance moral behavior.

Keywords: Moral Distress, Morality, Work, Emotion Theory, Componential Emotion Approach

11:20 Talk #2

Incarceration and Emotions: A Longitudinal Study of Emotion Recognition in Detention

Victoria Rambaud[1], Ilke Veeckman[1], Louis Favril[1], Tom Vander Beken[1], and Emilie Caspar[1]

[1] Ghent University, Belgium

Emotion recognition is crucial for social interactions and reintegration after detention, yet little is known about how incarceration influences this ability over time. This study investigates changes in emotion recognition performance in two groups of detainees: newly incarcerated and recently released individuals. Participants completed a facial emotion recognition task at two time points at 4-month interval. They were asked to identify six basic emotions and neutral expressions based on standardized facial stimuli. Accuracy scores were analyzed using mixed-effects models to examine longitudinal patterns and group differences. Results showed a significant main effect of group: newly incarcerated individuals had approximately 14% higher odds of correctly recognizing emotions compared to recently released individuals, consistently across all emotion categories. These results provide novel insights into how detention may impact the ability to recognize emotional expressions, with implications for social cognition, prison-based interventions, and rehabilitation efforts. This work contributes to a better understanding of the socio-emotional consequences of incarceration.

Keywords: Emotion Recognition, Incarceration, Rehabilitation

11:40 Talk #3

Neuromodulating Moral Emotions: Effects of tVNS and tDCS on Gastric and Cardiac Rhythm, Disgust, and Dishonest Behavior

Alessandro Iannone[1], Giulio Piperno[1,2], Maria Chelaru[1], Viola Oldrati[3], Alessandra Finisguerra[3], and Maria Serena Panasiti[1,2]

[1] Sapienza University of Rome, Italy
[2] Fondazione Santa Lucia IRCCS, Italy
[3] IRCCS E. Medea Scientific Institute Conegliano, Italy

Disgust plays a critical role in shaping moral behavior, particularly in situations involving violations of social or bodily norms. While traditional cognitive-behavioral approaches often struggle to modulate maladaptive disgust responses, recent neuromodulation techniques offer promising alternatives. In a series of studies, we investigated whether transcutaneous vagus nerve stimulation (tVNS) and cathodic transcranial direct current stimulation (tDCS) over the the left Insula could attenuate the emotional, behavioral, and physiological impact of disgust. In two different experiments, 64 healthy participants completed two sessions, in which they received either active or sham tVNS (study 1) or tDCS (study 2) while listening to audio narratives designed to elicit neutral, physical disgust (PD), or moral disgust (MD). Gastric activity was continuously recorded using electrogastrography (EGG), while cardiac activity was recorded with electrocardiogram (ECG). After each induction, participants rated their emotional responses (disgust, shame, guilt, etc.) and completed a behavioral task measuring dishonest behavior (Temptation to Lie Card Game). Our preliminary findings indicate that PD and MD have distinct effects on physiology: PD primarily alters the dominant frequency of the EGG, while MD influences a newly proposed measure-Renyi entropy of the EGG time-frequency representation (TFR). This metric reflects the signal's time-frequency concentration, which appears reduced in MD, possibly suggesting a stress-induced freezing response. Additionally, tVNS appears to exert

a stabilizing effect on the EGG responses to both PD and MD stimuli, as well as a general reduction in both dominant frequency and heart rate during baseline and neutral conditions.

Keywords: moral emotions, moral disgust, tVNS, tDCS, EGG, ECG, neuromodulation

12:00 Talk #4

Intergenerational transmission of aggressive behaviors: The role of multimodal synchrony

Kerstin Konrad [1,2], Lena Mehlem [1,2], Emily Volbert [1,2], Vanessa Reindl [1,2] & Katharina Otten [1,2]

[1] RWTH Aachen University, Germany
[2] Jülich Aachen Research Alliance, Germany

Intergenerational patterns of aggression remain poorly understood, especially the psychobiological mechanisms linking past trauma and present interpersonal conflict. Building on prior work on resilience and neural sensitivity to parenting experiences, we integrated how physiological and neural synchrony in parent-child dyads relates to the transmission of aggressive behaviors. Seventy-eight parents from the CRIMOC longitudinal study—which tracks criminal behavior from adolescence into adulthood—were recruited along with their children. Parent-child dyads completed the interactive Taylor Aggression Paradigm (iTAP), which included manipulated provocation trials, while undergoing fNIRS-based hyperscanning and cardiac monitoring to assess multimodal synchrony. Preliminary findings revealed that aggression increased in provocation blocks, with evidence of co-regulation in parent-child dyads as aggression declined during recovery in most of the dyads. Strong gender effects emerged: fathers and sons showed higher reactive aggression and greater sensitivity to provocation. Parental state anger positively correlated with aggression scores, and subgroups with histories of violent parenting were more reactive overall. Notably, high cardiac synchrony coupled with low neural synchrony in fronto-temporal regions predicted escalated aggression in subsequent trials. These findings highlight distinct but interacting roles of physiological and neural synchrony in aggressive dynamics and suggest that synchrony patterns may serve as biomarkers of intergenerational transmission risk, particularly in families with trauma histories.

Keywords: multimodal synchrony, intergenerational transmission, reactive aggression, parent-child interaction

12:30 – 14:00

Lunch break and Poster session I

(see Poster Abstracts Below)

14:00

Keynote speaker #2

Rethinking Punishment in Humans

Dr. Léo Fitouchi
Toulouse School of Economics, France

Why do humans punish? A longstanding hypothesis—stretching from Durkheim to modern evolutionary models—holds that punitive sentiments function to enforce group norms. In this talk, I argue that this view contradicts central features of our punitive psychology. Drawing on experiments with Mentawai horticulturalists (Indonesia), ethnographic coding of justice procedures in small-scale societies, and cross-cultural experiments in industrialized nations, I suggest that our justice psychology functions more to restore balance between offender and victim than to enforce group norms. These studies show that third-party punishment is rare, that most third-party involvement is aimed at resolving conflicts, that compensation is a universal—and often preferred—response to moral violations, and that these compensatory practices emerge from a universal moral psychology. Rather than depending on third-party enforcers, social order in our evolutionary past may have been far more decentralized, arising from individuals and families negotiating over how to best treat each other.

Session Morality – Short Talks

15:00 Talk #1

Exploring the Role of Moral Appeals in Reward Processing

Ömer Ergün[1], Felice Van Nunspeet [1], Frank Hindriks [2], and Naomi Ellemers[1]

[1] Utrecht University, Netherlands
[2] University of Groningen, Netherlands

Although difficult to accomplish, behavior change is crucial to address global challenges like climate change, due to the deep ties with human activity. Previous research shows that people have a strong desire to be moral, making moral appeals-messages aiming to invoke moral responsibility-promising tools to enhance motivation for behavior change. We conducted an ERP study examining how such an appeal affects behavioral performance motivation and ERPs associated with reward-processing. After reading a moral or a non- moral appeal on one's responsibility to contribute to climate action, participants (N = 70) completed a time-estimation task in which they could earn monetary rewards for themselves or a climate-friendly charity. We compared behavioral and ERP responses on three trial types: no-gain, self-gain, and charity-gain trials. A generalized mixed-effect model on the behavioral data revealed that whereas there was no effect of trial type in the non-moral appeal condition, participants in the moral appeal condition performed significantly better in charity-gain than no-gain trials. Regarding ERPs, preliminary confirmatory analyses showed no significant effect of appeal type on the FRN/RewP and SPN associated with immediate reward-evaluation and reward-anticipation respectively). However, interestingly, preliminary exploratory analyses revealed that in the moral appeal condition, the amplitude of P300 and LPP (associated with motivational evaluation and sustained reward-processing respectively) was higher in charity-gain trials compared to self-gain and no-gain trials-a pattern that was not apparent when the appeal was non-moral. These findings suggest that moral appeals can increase the reward value of pro-environmental behavior, potentially promoting positive behavior change.

Keywords: Moral appeals, reward processing, motivation, pro-environmental behavior

15:20 Talk #2

Exploring the role of ownership over a virtual body on the electrocortical signatures of dishonesty

Marina Scattolin[1,2,3], Giulio Piperno [1,3], Stella Petkovic [1,2,3], Riccardo Villa [4], Maria Serena Panasiti [1,3], and Salvatore Maria Aglioti [1,2,3]

[1] Sapienza University of Rome, Italy
[2] Italian Institute of Technology, Italy
[3] Fondazione Santa Lucia IRCCS, Italy

[4] University Medical Center Hamburg-Eppendorf, Germany

Embodied approaches to morality suggest that a reduced Sense of Ownership (SoO) – the feeling that the body or body parts belong to oneself – facilitates dishonesty when rewards are high (Scattolin et al., 2022). While this may indicate that low SoO induces detachment from the body and from negative attributes like immorality, thus increasing the likelihood of dishonesty, the brain processes underlying SoO modulations and their influence on moral decisions remain unknown. To uncover these processes, we recorded electrocortical activity from 77 participants while manipulating SoO with Virtual Reality. Participants played a Temptation to Lie Card Game with other players (OPs) using a virtual body presented from a first-person perspective (1PP; high SoO) or a third-person perspective (3PP; reduced SoO). During the game, participants could spontaneously lie or tell the truth to OPs, knowing that compensation for all players depended on their decisions, not the actual outcome. Thus, participants could increase their compensation by taking the money when OPs had won. To assess whether SoO modulates the neural correlates of dishonesty, we focused on the Readiness Potential (RP), an index of motor preparation known to decrease when individuals deceive others for self-serving purposes (Panasiti et al., 2014). Preliminary results show that dishonest behavior modulates RP amplitude in the 1PP but not the 3PP condition. This pattern supports our hypothesis that dishonesty is more salient when SoO is intact. In contrast, reduced SoO may itself serve as a distancing mechanism, diminishing the need for further neural modulation when acting dishonestly.

Keywords: Moral behavior, Bodily self-consciousness, Sense of Body Ownership, Immersive Virtual Reality, Electroencephalography

15:40 Talk #3

Shaken Ground, Shifting Minds: How the 2023 Earthquakes Transformed Moral Behavior and Intentions

Melih Varol[1], Ilayda Velioglu [1], Fatih Bayrak [2], Burak Dogruyol [1], Ozan Isler [3], Simon Gaechter [4], and Onurcan Yilmaz [1]

[1] Kadir Has University, Turkey
[2] Baskent University, Turkey
[3] University of Queensland, Australia
[4] University of Nottingham, United Kingdom

While the literature on threat, attitudes, and behavior has extensively examined mortality and terror-related threats, research on natural disasters-particularly earthquakes-remains limited. Prior studies suggest that such events can shape risk perception, interpersonal trust, prosocial behavior, and risk-taking. However, many of these findings suffer from limited eco- logical validity, raising concerns about whether the observed effects are genuinely driven by natural disasters or confounded by sample characteristics, contextual variables, or broader societal dynamics. To address these limitations, we conducted a preregistered, ecologically valid longitudinal study with three waves of data collection surrounding the 2023 Turkey– Syria Earthquakes. The same participants were assessed before the earthquake and again two and six months afterward, enabling us to track changes in prosocial behavior, moral sensitivity, and earthquake-related risk

perception. We also developed and tested an earthquake- related experimental manipulation to evaluate its psychological effects. Results revealed a significant increase in prosocial behavior following the earthquake, consistent with our preregistered hypotheses, but a decline in prosocial attitudes, contrary to expectations-suggesting an intention–behavior gap. Risk perception also increased post-earthquake, aligning with predictions, and these changes remained stable over time. In contrast, the experimental manipulation did not significantly affect prosocial attitudes, behaviors, or risk perception. These findings suggest that the psychological impact of earthquakes is difficult to replicate through experimental priming but emerges robustly in real-life contexts. Overall, although the salience of natural disasters may promote prosocial behavior, it can simultaneously sup- press prosocial intentions-highlighting the complex and sometimes paradoxical nature of disaster-driven social responses.

Keywords: prosociality, earthquake, threat, attitudes, behaviors

16:00 – 16:20

Coffee Break

16:20 **Talk #4**

Terrorism Frays Morality: The Effects of the 2022 Istanbul Bombing on Moral Foundations, Generosity, and Cooperation

İlayda Velioğlu[1], Onurcan Yilmaz [1], Burak Dogruyol [1], Ozan Isler [2], and Simon Gaechter [3]

[1] Kadir Has University, Turkey
[2] University of Queensland, Australia
[3] University of Nottingham, United Kingdom

Terrorism is often designed to undermine the moral fabric of society. In this pre-registered quasi-experimental study, we investigated the psychological and behavioral consequences of real-world terror by examining moral judgments and cooperative behaviors before and after the 2022 Istanbul bombing. A total of 222 participants were assessed both prior to and following the attack. Results indicated a significant reduction in generosity post-event, and experimental reminders of the bombing also led to decreased cooperation. While prior research, predominantly conducted in WEIRD (Western, Educated, Industrialized, Rich, Democratic) contexts, has found stronger conservative shifts among liberals in response to terror threats, our findings diverge from this pattern. In the Turkish context, it was conservative participants who responded more conservatively to the threat, showing reduced endorsement of universal moral principles such as care and fairness. These findings offer provisional support for the Reactive Conservative Hypothesis and suggest that ideological and cultural factors critically shape threat responses.
Our results raise important questions about the generalizability of dominant terror-response models developed in WEIRD societies. They highlight the need for cross-cultural investigations to better understand how real and perceived threats influence moral cognition and prosocial behavior across diverse sociopolitical contexts.

Keywords: Terrorism, moral judgments, prosocial behavior, Moral Foundations Theory, Reactive Liberal Hypothesis, Motivated Social Cognition

15:40 **Talk #5**

Moral Conformity: Neurocognitive Mechanisms of Social Influence in Dyadic Harmful Decisions

Giulio Piperno[1,2], Luzie Kallfaß[2], Rita Lima [1,2], and Emilie Caspar [2]

[1] Sapienza University of Rome, Italy
[2] Ghent University, Belgium

Social influence, encompassing obedience, compliance and conformity, strongly shapes human behavior, particularly in moral contexts. While the neurocognitive mechanisms underlying morality under obedience and compliance have been extensively studied, the mechanisms of conformity in moral behavior remain underexplored. We conducted an experiment where two agents sequentially decided whether to administer painful shocks to a victim in exchange for a shared monetary reward. We examined how the 1st agent's choice influenced the 2nd agent's one, and the neurocognitive processes implicated. We measured personal and shared responsibility ratings, sense of agency (SoA), auditory attention to the partner's decision, cognitive conflict during decision- making, and empathy for the victim's pain, with the latter three assessed with EEG. The 2nd agent's decisions were significantly influenced by the choice they witnessed from the 1st agent, with the neural correlations of auditory processing of the partner's decisions positively associated with the strength of the effect. Prosocial conformity did not reach significance but was associated with greater feelings of personal and shared responsibility, higher empathy, increased SoA, and reduced conflict compared to antisocial conformity. Moreover, higher empathic reactivity was linked to resistance against immoral influence. These findings offer novel insights into the neurocognitive mechanisms of moral conformity, revealing that the impact of social influence is modulated by the moral valence of the observed behavior. This pattern supports a theoretical distinction in the processes driving conformity, suggesting the emergence of diffusion of responsibility in immoral contexts and shared responsibility in prosocial ones.

Keywords: Morality, Conformity, Social Influence, Sense of Agency, EEG

17:00 – 17:30
Concluding Remarks

17:30 – 19:00
Free Social Event:
Group Visit at GUM Botanical Garden

DAY II

Friday, October 17, 2025

Welcome, Local Speaker & Keynote

08:30 **Welcome Coffee**

09:00 **Local speaker #2**

Spontaneous mentalizing:
the effect of others on individual cognition

Dr. Lara Bardi
PI of Social & Cognitive Neuroscience Lab, Ghent University

Over the last decade, research has shown that our cognition is shaped by the presence of others, even when their perspectives are not directly relevant to our current task. We not only detect others rapidly but also seem to spontaneously track their perspectives and mental states, often outside of awareness. While this phenomenon has been demonstrated behaviorally, the underlying cognitive and neural mechanisms remain poorly understood.

In this talk, I will present evidence that spontaneous and explicit (deliberate) Theory of Mind (ToM) are part of the same system, rather than separate processes. I will then briefly describe our current work in the lab, which explores several complementary directions. We investigate the basic mechanisms by which others influence individual perception and decision-making, We also study how spontaneous mentalizing unfolds during real dyadic interaction, capturing the dynamics of live social exchanges, and we examine communication in autism, aiming to understand how differences in mentalizing and social competence shape social interaction. Using behavioral paradigms alongside electrophysiology, neuroimaging, and brain stimulation, we aim to uncover how and why the minds of others shape our own cognition and how these processes unfold during social interaction.

09:40 Keynote speaker #3

Learning from and with others: social interaction as a medium to acquire new knowledge

Dr. Sara de Felice
Research fellow, University of Cambridge, UK

Learning rarely happens in isolation. Across development and into adulthood, our interactions with others shape how we acquire and retain factual knowledge, whether at home with family, at school with teachers and peers, or at work with colleagues.

In this talk, I will present evidence from multiple studies using diverse methodologies and cohorts – from large-scale online experiments to naturalistic hyperscanning and eye-tracking studies, and from neurotypical adolescents and adults to autistic adults – that converge on a central idea: social interaction provides a framework within which multiple candidate mechanisms, such as joint attention, mutual gaze, social reward, synchrony and others, may enhance learning. By comparing findings across modalities, I will highlight why considering the social dimension of cognition is not only important for ecological reasons but may prove essential for a mechanistic understanding of how we learn in the real-world and across the lifespan.

10:30 – 11:00

Coffee Break

Session Social Cognition I – Short Talks

11:00 Talk #1

Increasing Empathy for Pain with Brain Stimulation to Study Prosocial Disobedience

Evelyne Fraats[1], Roy, Sumit [2,3], Michael A. Nitsche [2,4], and Emilie Caspar [1]

[1] Ghent University, Belgium
[2] Leibniz Research Centre for Working Environment and Human Factors, Germany
[3] Ruhr University Bochum, Germany
[4] University Medical Hospital Bergmannsheil, Germany

The tragedies of World War II demonstrate that many of the most horrendous acts are committed in the name of obedience. While the phenomenon of resisting immoral commands despite pressure to comply is recognized, the cognitive mechanisms driving such prosocial disobedience remain poorly understood. Prior research suggests empathy for pain is a key neurobiological factor, which is downregulated under coercive conditions. Causally manipulating empathy for pain using non-invasive neuromodulation enables direct study of its effects on prosocial disobedience. To do this, we determined the optimal concurrent electroencephalogram (EEG) - transcranial direct current stimulation (tDCS) set-up to target empathy for pain. First, through computational modeling, we discovered two high-definition (hd)-tDCS 4x1 electrode configurations that effectively target the Somatosensory cortex I or II, which are part of the empathy network. In combination with a previously published electrode con- figuration, we conducted a simultaneous EEG-tDCS experiment to test the effectiveness of our three configurations as participants observed painful stimuli applied to another person's hand. By analyzing modulations in the amplitude of late ERPs, which serve as a marker for empathy towards pain, we observed modulation of empathy for pain in our electrode con- figurations. We will present the most effective configuration and its modulation of empathy for pain EEG markers. Through this study, we established that non-invasive neuromodulation can effectively modulate empathy for pain. These are essential steps towards utilizing this modulation in a future study to causally examine the impact of empathy for pain on prosocial disobedience.

Keywords: empathy for pain, EEG, neuromodulation, tDCS, prosocial disobedience

11:20 Talk #2

Social learning in the cerebellum and the impact of cerebellar neurostimulation

Frank Van Overwalle[1]

[1] Vrije University Brussel, Belgium

For a long time, the human cerebellum was considered to be mainly involved in motor coordination. Several decades ago, however, it was recognized that the cerebellum was also supporting human cognition and affect, and during the last decade more evidence demonstrated that the posterior cerebellar Crus is essential for human social cognition, in particular for the temporal coordination of social action sequences. This talk gives a brief overview of evidence on humans during the last decade which shows the strong involvement of the cerebellar Crus in a plethora of human social sequencing functions, as well as past attempts to improve social functioning with non-invasive stimulation using transcranial direct current stimulation (tDCS) and transcranial magnetic stimulation (TMS). This talk will also show- case recent experiments using tDCS on social sequencing tasks, showing successful as well as failed attempts to improve social sequencing performance.

Keywords: cerebellum, temporal sequencing, non, invasive stimulation, tDCS

11:40 Talk #3

Neural and Behavioral Dynamics in Sibling Interactions on the Interactive Taylor Aggression Paradigm: Insights from fMRI Hyperscanning

Julia Koch[1,2], Lucia Hernandez-Pena[1,2], Dorothea Konig[1], Julia Schräder[1,2], Edward S. Brodkin[3], Ute Habel[1,2], Rik Sijben[1], and Lisa Wagels[1,2]

[1] RWTH Aachen University, Germany
[2] Jülich Aachen Research Alliance, Germany
[3] University of Pennsylvania, United States of America

Successful social interaction depends on the brain's capacity to rapidly shift between large-scale neural networks, enabling flexible responses to dynamic interpersonal demands. In this study, we apply a second-person neuroscience approach using dyadic fMRI hyperscanning to investigate the neural dynamics of aggression and conflict during real-time interaction. We recorded simultaneous neural and behavioral data from 50 sibling pairs (N = 100 individuals) while participants engaged in an interactive version of the Taylor Aggression Paradigm (iTAP). This design enabled us to analyze both within-subject neural dynamics and between-subject coordination. Using Hidden Markov Modeling (HMM), we identified recurrent neural states reflecting dynamic changes in both regional activation and interregional connectivity during the iTAP. One state, for example, showed increased activity in the posterior cingulate cortex (PCC) and ventromedial prefrontal cortex (vmPFC), alongside enhanced connectivity between PCC and precuneus, and between dorsomedial prefrontal cortex (dmPFC) and anterior insula (AI). These spatial patterns are consistent with engagement of the default mode, mentalizing, and salience networks. We are currently examining how the occurrence and transitions of these neural states re- late to individual aggression levels, dyadic dynamics, and sibling relationship characteristics. This study examines the neural mechanisms of interpersonal conflict by linking dynamic brain activity to behavior in a real-time interactive setting.

Keywords: social interaction, fMRI hyperscanning, conflict, siblings, functional connectivity

12:20 Talk #4

Synchrony in the Wild: how minds and gazes align across roles in live performance

Albane Arthuis[1], Laura Rai[1] , Daniel Richardson[1], and Guido Orgs[1]

[1] University College London, United Kingdom

In social settings, our behaviours and physiological signals tend to synchronise. From gaze behaviour (Wohltjen & Wheatley, 2024), to heart rate (Konvalinka et al., 2011; Coutinho et al., 2020), and neural activity (Nam et al., 2020). This synchrony depends on various factors, such as social and physical proximity (Mayo, Lavidor & Gordon, 2021; Wange et al., 2022). Additionally, the social role individuals play during interactions can influence both perceived proximity and behaviour (Kircher & Odeen, 2023; Gamliel et al., 2021). We hypothesise that individuals who share the same beliefs or roles will exhibit higher inter- brain synchrony compared to those with differing roles. Interpersonal synchrony in other behaviours, such as blinking or fixation points, is also expected to vary depending on participants' roles. To explore this, we commissioned a performance-experiment titled 'Snakeskin in the wild', in which audience members and performers were equipped with wearable EEG (Electroencephalogram) and eye-trackers. Audience members were invited to take part at three different levels: for most of the performance, they were passively watching; in one section, some were told their brainwaves were being used to generate the performance's soundscape; and in another, some participants were invited to sit on stage. We collected synchonised EEG and eye-tracking data for 70 audience members and 12 performers in total, up to 10 audience members simultaneously during each performance (28 audience members and 2 performers per session, for 7 sessions). To test our hypotheses, we will use interbrain synchrony analysis on the EEG data and dynamic time warping analysis for eye-tracking data.

Keywords: Hyperscanning, collective attention, interbrain synchrony, interaction, blink

12:20 – 14:00

Lunch break and Poster session II

(see Abstract Below)

14:00

Keynote speaker #4

(Trying to?) Clarify Social Cognition: Conceptual and Practical Perspectives

Dr. François Quesque
Université Paris Nanterre LICAÉ & CRNL U1028, France

Everyone has their own idea of what 'social cognition' is... yet, when it comes to defining it, this entity—which has now been included for 10 years in the DSM as a cognitive domain—poses a serious challenge. This presentation explores the many conceptions of social cognition, both in practice and theory. On the practical side, it examines how social cognition is represented by students and assessed by clinical neuropsychologists. The theoretical aspect focuses on its historical development and the differing interpretations across disciplines. The terminology used to discuss these underlying concepts is also debated, along with the most commonly employed assessment tools. Lastly, a collaborative project initiated a few years ago is introduced, which has led to the creation of a shared lexicon for discussing these issues — perhaps the first step towards a unified understanding of social cognition.

Session Social Cognition II – Short Talks

15:00 **Talk #5**

Does being pro-ecological equate to being pro-social? A EEG study

Leslie Tricoche[1], Damien Brevers [2], Claus Lamm [3], and Emilie Caspar[1]

[1] Ghent University, Belgium
[2] UCLouvain, Belgium
[3] University of Vienna, Austria

Global environmental crisis is a crucial challenge of our century, impacting regions world- wide and threatening human well-being. Yet, collective and individual awareness to address this crisis remains insufficient, with limited adoption of pro-ecological behaviors (PEcoB). Understanding decision-making processes behind PEcoB is thus a key societal challenge. A current framework suggests PEcoB is a form of prosocial behavior (PSocB), involving a conflict between self-interest in non-ecological choices and altruistic pro-ecological choices. This resolution may depend on personal norms, individual and contextual factors influencing moral judgment, and motivation levels for pro-ecological acts. Based on this framework, our project explores how individuals choose between PEcoB and PSocB (e.g., donate to a climate-change charity or an organization helping the homeless) based on their moral judgment, influenced by individual (e.g., age) and contextual (e.g., education, cultural and societal specificities) factors. It seeks to understand the extent to which cognitive conflict and motivational processes play a role in this decision-making process, experimentally validating the framework of moral theories. Specifically, we asked adults participants to complete a two-forced choice, while recording their brain activity via EEG. Stimuli represented four behavior types: pro-ecological, pro-social, anti-ecological and anti-social ones. We focused on cognitive conflict and motivation markers during the decision-making between pro-ecological and pro-social behaviors, or anti-ecological and anti-social behaviors. Individual factors, age particularly, were investigated as covariates. Testing and analyses are still ongoing.

Keywords: proecological behaviors, prosociality, morality judgment, cognitive conflict, motivation

15:20 **Talk #6**

An Interactive Approach Showing the Association Between Social Functioning and Theory of Mind in Aging

Anne-Lise Florkin[1]

[1] University of Pavia, Italy

Social interactions tend to decline with age, potentially due to reductions in social cognition and social functioning. While previous studies have linked social cognition to social functioning, they

primarily relied on self-report measures or assessments of the ability to detect social cues, rather than directly evaluating social functioning abilities, such as reciprocity. This study aimed to investigate age-related differences in the actual performance of reciprocal behavior and to examine the predictive roles of Theory of Mind (ToM) and general cognition in this decline, as well as associations among cognition, ToM, and reciprocity across age groups. A total of 112 participants, 56 younger adults and 56 older adults, completed an interactive, ecological reciprocity task: the Interactive Drawing Task (IDT), along with cognitive and ToM assessments. Results showed that older adults displayed significantly lower levels of physical, collaborative, and flexible reciprocal behavior compared to younger adults. This reduction was associated with a decline in cognitive functioning, but not directly with ToM. However, in older adults, ToM did predict performance in all three dimensions of reciprocity. This suggests that the capacity to infer others' mental states supports the ability to engage effectively and adaptively in reciprocal interactions. Overall, the study demonstrates that reciprocal behavior declines with age and is shaped by cognitive abilities. While ToM does not explain age-related decline per se, it plays a compensatory role in older adults, enabling more effective reciprocal engagement. These findings highlight the value of using ecological, interactive methods to assess social functioning in aging.

Keywords: Theory of Mind (ToM), social function, aging

Local Speaker

15:40

Local speaker #3

It Takes a Village: studying the dynamics of multigenerational social communication

Dr. Suzanne Dikker
Department of Experimental Psychology, Ghent University

While many daily interactions involve people of different ages, little is known about how the brain supports natural communication across generations. I will present my ERC-project InterCom, which integrates laboratory research with real-world experimentation, and intrapersonal analyses with interpersonal measures (e.g., "brain-to-brain synchrony"), to examine how children, adults, and older adults connect within and beyond family contexts.

Do age-related brain rhythm differences disrupt conversational flow? How do listeners process speech from children or older adults? Are intergenerational miscommunications partly due to reduced predictive processing in these groups? And, crucially, how might we overcome neurobehavioral sources of misalignment? Although lab studies have shown significant

differences in how age groups process verbal and nonverbal signals, these questions remain largely unanswered. I will use a community neuroscience approach: We invite families to interact with visualizations and sound patterns reflecting their inter-brain and -body synchrony in real time, making abstract notions like “being on the same wavelength” tangible and encouraging playful experimentation. To offset the messiness of real-world data and the limitations of laboratory settings, ecological data will guide and constrain experiments, while laboratory experiments will help refine naturalistic inquiry. Together, the goal of the project is to open new territory in intergenerational and real-world neuroscience—ultimately generating insights and tools to support, and perhaps improve, human connectedness across the lifespan.

16:30 – 17:30

Coffee break and Poster session III

(see Abstract Below)

17:30 – 17:45

Closing and Goodbye

POSTER SESSIONS – ABSTRACTS

Poster Session I

Poster #1

Exploring the Priming effect of Multidimensional Political Ideology on Moral Expansiveness

Isil Ayca Akkus[1]

[1] Tilburg University, Netherlands

This research will investigate the effect of political ideology priming on people's moral expansiveness scores (Crimston et al, 2016). The primary aim is to test whether social and economic media priming of political ideology would yield different scores in participants' MES scores. The study adopts a quantitative approach, using two (Political ideology: Liberal vs. Conservative) and two (Policy domain: Social and Economic) factorial experimental design to analyze four media priming groups, liberalism (Social vs. Economic Prime), and conservatism (Social vs. Economic Prime). The data will be collected through the Prolific platform, with the aim of obtaining a multinational dataset including non-WEIRD cultures. An a priori power analysis ($\alpha = .05$, Cohen's $d = 0.20$) resulted in $N = 788$, increasing to $N = 946$ accounting for 20% attrition. The research will address the following hypotheses: firstly, participants primed with social liberalism will exhibit broader moral expansiveness (higher MES scores) than those primed with social conservatism, secondly, participants primed with economic liberalism will exhibit broader moral expansiveness (higher MES scores) than those primed with economic conservatism. Thirdly, participants primed with liberal ideology (social or economic) will allocate more moral units to non-human groups (e.g., animals, environment) than participants primed with conservative ideology. Hence, this study will shed light on the prolonged discussion regarding the moral expansiveness – the breadth of moral circle differences between two political ideology groups with a novel focus on social vs. economic aspects. Thus, it will provide unique insights for understanding the contemporary dynamics.

Poster #2

When Neutral Isn't Neutral: Perceptions of Emotion in AI-Generated Faces and the Role of Gender Stereotypes

Gaia Carlotta Fiamberti[1], Luca Cecchetti[1] & Giada Lettieri[1]

[1] IMT School for Advanced Studies Lucca, Italy

This poster outlines a research program investigating how gender stereotypes influence the perception of facial expressions. We developed a novel set of 48 facial stimuli using a generative AI model (comfyUI-juggernautXL), controlling for demographic diversity and standardizing all expressions to emotional neutrality. The first study will examine whether these neutral faces are perceived as emotionally neutral across key affective and social dimensions: expression valence, emotional intensity (i.e. arousal), dominance and trustworthiness. We hypothesize that, due to prevailing gender norms, female faces will be

perceived as more negative or emotionally cold compared to male faces. This prediction is grounded in the stereotype that women are expected to appear pleasant and smiling; thus neutral expressions may violate these expectations and be misinterpreted as unfriendly. In contrast, emotional neutrality in men may be seen as more typical or socially acceptable. Building on these findings, a second proposed study will present participants with the same neutral faces alongside brief, identical contextual cues (e.g., occupational roles). We aim to test whether such cues lead to different social inferences-such as perceived competence, warmth, or trustworthiness-based solely on the apparent gender of the face. If so, this would illustrate how gender stereotypes shape trait attributions even in the absence of expressive variation. Together, these studies will validate a new open-access stimulus set while revealing how subtle biases infiltrate the interpretation of ”neutral” social information. The poster will present study protocols, theoretical foundations, and invite discussion on implications for social cognition, AI ethics, and stereotype research.

Poster #3

Negatively Biased Feedback and Intolerance of Uncertainty Influence Confidence in Social Judgments

Rekha Varrier[1] & Johannes Schultz[1]

[1] University of Bonn, Germany

Social information processing is vital, yet interpretations vary widely across people, both due to personality traits (e.g.,anxiety, social sensitivity) and the current environment. People finding themselves in new social environments (e.g.,migration, job change) need to learn how to act and interpret social signals owing to an evolutionary ”need to belong” (Baumeister & Leary, 1995). For this, they depend on others’ feedback. But we live in a society where conformist behaviours are seen as normal, while non-conformist behaviours are penalised. Here, using a challenging social point-light stimuli discrimination task, we inquire whether a negatively biased feedback intervention worsens performance and metacognition compared to unbiased feedback, and whether these effects are modulated by people’s in- tolerance of uncertainty (IU; measured using a questionnaire). Results show no impact on accuracy but decreases in both global and local (trial-wise) confidence after biased feedback (n=123) compared to the control (n=55; interactions pre/post-intervention X biased- feedback/control group: p=0.003 for global and 0.04 for local confidence, resp.). Changes (post–pre) in local confidence and performance correlated in both groups (r=.18, p=.02); however, the link between changes in performance and global confidence that was present in the control group (r=.35, p=.01) disappeared in the biased-feedback group (r=.02, p=.84; interaction p=.05). Lastly, metacognitive performance (confidence correct responses – confidence errors) improved in participants with higher IU irrespective of the intervention (r=.24, p=.003). Thus, in a challenging setting, (1) negatively biased information reduces confidence and leads to underestimation of performance, and (2) metacognitive performance increases over time in proportion to people’s intolerance of uncertainty. Figures: https://uni-bonn.sciebo.de/s/id8TYRU3vLNOhTg#pdfviewer

Poster #4

Would You Profit from Punishing Somebody Else? A Hyperscanning Study of Aggression

Sara Boccadoro[1], Rik Sijben[1], Julia Koch[1], Lucia Hernandez-Pena[1], Ute Habel[1] & Lisa Wagels[1]

[1] RWTH Aachen University, Germany

Previous studies investigating aggression have typically adopted a single-person approach, providing limited insight into social interactions. Hyperscanning, which measures brain activity in more than one person simultaneously, offers a way to explore the neural underpinnings of these interactions. However, it remains unknown whether inter-brain dependence during real interactions differs from that during manipulated interactions. This pilot study examines how reward and punishment influence behavior and inter-brain dependence in three Theory of Mind (ToM): the right temporoparietal junction (rTPJ), the dorsomedial prefrontal cortex (dmPFC), and the precuneus (PCun), during real versus manipulated aggressive interactions. We developed a task in which 12 unacquainted dyads chose between punishing the self (self-punishment) or the other person (aggression) via aversive noise stimuli in exchange for monetary reward, across 96 trials alternating between real and manipulated interaction blocks, while lying in separate MRI scanners. The actor-partner interdependence model was used to analyze behavioral and neural data. Behavioral results show that the partner effect was present only in real, not manipulated, interactions: participants with greater punishment sensitivity chose aggression less frequently after their opponent chose aggression. Reward strongly influenced behavior in both block types. Neural analyses also revealed partner effects in two ToM regions, the rTPJ and the PCun, during real but not manipulated interactions: participant's activation in the rTPJ and PCun in the previous trial negatively predicted the opponent's rTPJ and PCun activation in the following trial, respectively. These findings support the use of hyperscanning for investigating the behavioral and neural correlates of aggressive interactions.

Poster #5

Mutual Moral Prediction and Brain-to-Brain Synchrony in Dyadic Decision-Making

Sandra Sasikumar[1,2], Eva Vives[1], Nicolas Coucke[1] & Emilie Caspar[1]

[1] Ghent University, Belgium
[2] University of Padua, Italy

Moral decision-making often occurs in social settings, requiring individuals to take into account others' values, beliefs, and judgments. In this planned study, we will measure how people adjust their moral choices when deciding together with another person. Specifically, we will investigate whether changes in moral decisions during the task are influenced by predictions made about their partner's moral orientation. Prior work suggests that predictions made in social contexts guide interpersonal coordination and shape moral decision-making processes (Mayo & Shamay-Tsoory, 2024). Using a dyadic EEG hyperscanning design, participants will engage in a series of moral dilemmas while their brain activity is recorded simultaneously. At two points, at the beginning then midway through the session, participants will provide their predictions about their partner's moral orientation (e.g., utilitarian vs. deontological response). These predictions will be compared to the partner's actual choices, allowing assessment of prediction accuracy, belief updating, and alignment over time.

We hypothesise that individuals who make more accurate predictions will exhibit greater brain-to-brain synchrony and reduced feedback-related negativity (FRN), a neural indicator of reduced prediction error and smoother interpersonal coordination. In contrast, poor predictions ought to elicit greater mid-frontal theta activity and error-related negativity (ERN), reflecting the cognitive conflict and dissonance that result from violated expectations. Data collection is ongoing, and preliminary results will be presented at the workshop.

Poster #6

Cerebellar Anodal Transcranial Direct Current Stimulation (tDCS) Improves Implicit Mentalizing Sequence Learning: A Double-Blind Sham-Controlled Study

Min Qiu[1]

[1] Vrije University Brussel, Belgium

An increasing number of studies have revealed that the posterior cerebellum plays a vital role in mentalizing by identifying and learning social action sequences which render social interaction more fluent, coordinated and predictable. In a previous study, an implicit social sequencing task, the Belief serial response time (SRT) task, was administered after targeting the cerebellum with anodal transcranial direct current stimulation (tDCS). Anodal tDCS did not show significant improvement, except for a non-social control version. We hypothesized that the familiar and overlearned nature of attributing social beliefs left very little margin for improvement. Therefore, the current study developed a more complex and difficult version of the Belief SRT task, and again examined the effect of anodal cerebellar tDCS. Using a double-blind sham-controlled protocol, participants received either anodal tDCS (i.e., 2 mA for 20 min) or sham tDCS. Results showed that participants receiving anodal tDCS responded faster when the sequence of actions was repeated as opposed to randomized, while those receiving sham tDCS did not show a significant improvement. These findings suggest a positive effect of anodal cerebellar tDCS on implicit mentalizing sequence learning, supporting a causal role of the cerebellum in this learning process. This holds promise for treating clinical populations with limited social capacities (e.g., autism) with anodal tDCS.

Poster #7

Empathic Accuracy and its Correlates: A Systematic Review

Nikki Taelemans[1], Celine Hinnekens[1], Liesbet Berlamont[1], Laura Sels[1], William Ickes[1] & Lesley Verhofstadt[1]

[1] Ghent University, Belgium

A systematic review was conducted to synthesize potential variables linked to empathic accuracy (EA) in adults. EA is defined as the extent to which a person accurately infers a target person's spontaneous feelings or thoughts as they occur moment-to-moment in a particular situation. Database searches were performed in Web of Science, PubMed, Cochrane, and PsycINFO. Eligible studies met the following criteria: (a) measurement of EA in adults, (b) use of the dyadic interaction paradigm or the standard stimulus paradigm, (c) clear identification and measurement of variables linked to EA, and (d) explicit measurement of associations between these variables and EA. After screening 707 articles, 135 met the inclusion criteria and were reviewed. Quality assessment criteria and scoring ensured transparency in study evaluation. Potential variables linked to EA were categorized into individual, interpersonal, and situational characteristics. Converging evidence was found for individual characteristics (e.g., agreeableness,

emotional clarity, attributional bias, psychotic symptoms in perceivers, depressive symptoms in targets), interpersonal characteristics (e.g., acquaintanceship, prosocial behavior, aggressive behavior), and situational characteristics (e.g., informational sources, motivation, use of stereotypes, training). Some characteristics, such as gender, showed diverging evidence, while other promising findings require replication. Based on these results, we recommend leveraging situational variables such as informational sources, motivation, and specific training aspects to enhance EA in both non-clinical and clinical populations. These insights provide promising directions for future research and clinical practice, suggesting strategies to improve EA.

Poster #8

Neural Synchrony During Real-Time Cooperation: An fMRI Hyperscanning Study of Sibling Pairs

Lucia Hernandez-Pena[1,2], Arezoo Taebi[1], Julia Koch[1], Rik Sijben[3], Klaus Mathiak[1] & Lisa Wagels[1]

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[2] University of Cambridge, United Kingdom
[3] Interdisziplinäres Zentrum für klinische Forschung (IZKF), Germany

Cooperation is a fundamental feature of human interaction, requiring individuals to coordinate their actions to achieve shared goals. Second-person neuroscience provides a framework for studying the neural basis of real-time, reciprocal interactions. In this study, we used fMRI hyperscanning to simultaneously record brain activity in 50 same-sex sibling pairs as they played a joint action problem-solving task (Cooperative Tetris Task). In this task, one participant moved the Tetris piece while the other rotated it, collaborating freely to solve predefined easy and difficult scenarios. To measure synchrony, we calculated inter-subject Pearson's correlation coefficients across 36 regions of interest (ROIs) involved in social cognition.
Interactive sibling pairs showed significantly higher brain synchrony compared to randomly permutated non-sibling pairs in 19 ROIs after correction for multiple comparison. Most of these regions are part of the higher-order theory of mind network (including bilateral temporo-parietal junction, precuneus, dorsomedial prefrontal cortex), suggesting that participants were likely anticipating and interpreting each other's intentions during the task. Notably, greater synchrony in the left temporo-parietal junction significantly predicted task success. Contrary to our hypotheses, we did not find significant associations between neural synchrony and measures of sibling relationship quality or personality traits.
These findings expand our understanding of the neural underpinnings of cooperation and collaboration, building on prior hyperscanning research that was often limited to few brain ROIs. While sibling closeness did not relate to synchrony in this healthy sample, future research may explore whether this association emerges in clinical or at-risk populations.

Poster #9

Understanding the Principles of Moral Attitudes, Moral Decision-Making, and their Neural Underpinnings

Aiste Ambrase[1], Veronika I. Müller[2,3], Julia A. Camilleri[2,3], Hendrickx, Malte[4], Grahlow, Melina[1], Hong Yu Wong[1] & Birgit Derntl[1,5]

[1] University of Tübingen, Germany
[2] Institute of Neuroscience and Medicine: Brain and Behaviour, Germany
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[4] University of Michigan, United States of America
[5] German Center for Mental Health, Germany

A particular research interest has been generated around the questions of moral principles that guide moral decision-making in general population and the neurobiological mechanism behind it. In the two studies we show that there are still some methodological considerations to consider when addressing the observations on moral attitudes and neural correlates of moral decision-making. In the first study1, we have demonstrated that self-reported utilitarian attitudes measured by the German version of the Oxford Utilitarianism Scale (OUS-DE) show a strong linear relationship with hypothetical moral dilemmas in two independent samples (N1 = 378, 243 women, Mage = 25.37 and N2 = 348, 206 women, Mage = 24.61) but only an inversed U-shape relationship between these attitudes and utility-relevant moral behavior during the Covid-19 pandemic could be found in a third sample (N3 = 39, 19 women, Mage = 23.72). Repeated OUS-DE measurement in this sample showed stability in responders' utilitarian beliefs post-pandemic, indicating the need to better understand the application of moral attitudes to real-life decision-making. In the second study2, we performed an ALE meta-analysis of neural correlates across 164 experiments in moral, risky, and ambiguous decision-making. Our analyses revealed that studies comparing decision-making with a high-level control task in morality, risk, and ambiguity domains find distinct neural activation patterns than studies comparing neural activation related to the opposite choices in these domains. More studies comparing opposite moral choices are required to better understand neural activation related to specific choice attributes and principles guiding the choices.

Poster #10

Facing Social Dominance: Oxytocin Modulates Early Neural Responses to Facial Dominance

Yulong Huang[1,2], Yaner Su[1], Xiaoman Xu[1], Lara Bardi[2] & Chen Qu[1]

[1] South China Normal University, China
[2] Ghent University, Belgium

Human social interactions are inherently shaped by the perception of dominance, a key facial trait signaling social power, control, and potential threat. While oxytocin (OT) is recognized for its role in promoting prosocial behaviors and modulating social cognition, its influence on the neural mechanisms underlying dominance perception remains unclear. The present study investigated whether oxytocin affects the rapid and automatic discrimination of facial dominance using Fast Periodic Visual Stimulation (FPVS) combined with electroencephalography (EEG). In a double-blind, placebo-controlled, within-subject design, participants received intranasal oxytocin (24 IU) or placebo across two sessions separated by one week. Participants viewed streams of computer-generated faces varying along a dominance dimension at a

stimulation rate of 6 Hz while attending to a central fixation task. In the periodic condition, dominant and non-dominant faces alternated at 3 Hz, enabling frequency-tagged neural responses of dominance discrimination to be isolated; in the non-periodic condition, the same faces were presented in random order to control for low-level visual confounds. Results revealed robust 3 Hz responses over occipito-temporal regions under placebo, reflecting automatic discrimination of facial dominance. Critically, this discrimination response was abolished under oxytocin administration, indicating that oxytocin attenuates the early perceptual differentiation of dominance features in faces. These findings demonstrate that oxytocin modulates implicit and rapid neural processing of social dominance, offering insight into its potential therapeutic relevance for disorders characterized by maladaptive dominance perception, such as social anxiety and externalizing disorders.

Poster #11

Interpersonal Adjustment as an Account for Communication Challenges between Individuals with Low and High Autistic Traits

Rui Liu[1], Jan R. Wiersema [1] & Lara Bardi [1]

[1] Ghent University, Belgium

Autistic individuals are often depicted in scientific literature and popular media as lacking social motivation, with communication difficulties considered an inherent feature of the condition. However, emerging perspectives suggest that some communication challenges may instead arise from mismatches in perception and response between autistic and neurotypical individuals. These mismatches may hinder interlocutors from accommodating their conceptual spaces to one another, creating difficulties for both parties. To test this, we examined real-time communication between dyads varying in autistic trait levels (high–high, low–low, high–low) during a collaborative game. Mixed-trait dyads showed a distinct temporal trajectory of interpersonal adjustment, whereas high-high and low-low pairs resembled their intragroup counterparts. Earlier adjustments predicted higher accuracy across all groups, highlighting the role of timely conceptual accommodation in successful communication. These emerging communication dynamics led to less preferable communication outcomes, namely, reduced joint correctness, lower enjoyment, and decreased willingness to engage in future interactions in dyads with greater disparity in autistic traits. Such effects were mediated by interpersonal adjustment. Together, these findings challenge the notion that communication difficulties are inherent to autism and underscore the bidirectional, dynamic nature of interactional challenges across neurotypes.

Poster #12

Real-Time Moral Decisions During Social Interaction: An EEG Hyperscanning Investigation

Eva Vives[1], Nicolas Coucke[1] & Emilie Caspar[1]

[1] Ghent University, Belgium

Moral dilemmas are situations that elicit moral conflict in individuals, as they involve choosing between two mutually exclusive options with opposing moral values. Despite their direct relevance to real-life situations, moral preferences have so far been mostly studied in isolated settings, overlooking real-life social dynamics. The impact of social presence and social interactions on decisions about moral dilemmas

remains largely undocumented in the existing literature. Nevertheless, the most critical moral scenarios, such as those involving sparing or killing other people, are rarely made in isolation. To address this critical gap, we designed an experiment that aims to examine the processes underlying moral decision-making between utilitarian and deontological actions in a social context. This social context is induced by pairing participants into face-to-face dyads. During the task, participants are presented a series of moral dilemmas on a screen. They first report their response privately on an external device (alone trials) and then make a collective decision after reaching a consensus (social trials). Simultaneous EEG hyperscanning recordings of the two participants are made during the whole task. We expect that participants will 1) adjust their decisions to match those of their interaction partners, reflecting moral normativity, and 2) increase their proportion of utilitarian choices. In terms of EEG data, we expect moral conflict (quantified as mid-frontal theta activity) to increase when participants' social decisions are incongruent with their personal moral views. Furthermore, movement alignment might be predictive of brain coherence, depending on the social context.

Poster Session II

Poster #1

How Prison Settings Impact Empathy for Pain: An EEG Study

Elodie Kox[1] & Emilie Caspar[1]

[1] Ghent University, Belgium

Over the last decade, research has shown that our cognition is shaped by the presence of others, even when their perspectives are not directly relevant to our current task. We not only detect others rapidly but also seem to spontaneously track their perspectives and mental states, often outside of awareness. While this phenomenon has been demonstrated behaviorally, the underlying cognitive and neural mechanisms remain poorly understood. In this talk, I will present evidence that spontaneous and explicit (deliberate) Theory of Mind (ToM) are part of the same system, rather than separate processes. I will then briefly describe our current work in the lab, which explores several complementary directions. We investigate the basic mechanisms by which others influence individual perception and decision-making, We also study how spontaneous mentalizing unfolds during real dyadic interaction, capturing the dynamics of live social exchanges, and we examine communication in autism, aiming to understand how differences in mentalizing and social competence shape social interaction. Using behavioral paradigms alongside electrophysiology, neuroimaging, and brain stimulation, we aim to uncover how and why the minds of others shape our own cognition and how these processes unfold during social interaction.

Poster #2

Cerebellar tDCS Modulates the Mentalizing Network in Neurotypical and Autistic Adults

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The cerebellum has increasingly been linked to social cognition, particularly mentalizing (the capacity to understand others' beliefs, intentions, and emotions). In a series of studies, we applied transcranial direct current stimulation (tDCS) over the cerebellum to examine its role in mentalizing. In initial work (n=23), anodal stimulation led to reduced activation in key mentalizing regions, including the temporoparietal junction (TPJ) and precuneus, alongside lower task performance. A complementary resting-state analysis in the same sample revealed increased connectivity between cerebellar Crus II and the right inferior frontal gyrus (involved in social understanding). This effect was further shaped by individual differences in autistic traits, suggesting a link between cerebellar stimulation and social processing variability. Building on these findings, we developed a more focal stimulation protocol and applied it to a larger and more diverse sample (n=100), including autistic adults, neurotypicals, and individuals with high autistic traits. In this study, fMRI revealed distinct neural responses: in autistic participants, cerebellar stimulation increased activation in the TPJ and precuneus, while in neurotypicals, the same stimulation reduced activity in those regions. These

contrasting patterns suggest that the cerebellum contributes differently to social understanding across groups. Altogether, our findings highlight a modulatory role of the cerebellum in mentalizing and raise the possibility of tailoring neuromodulation approaches to support social cognition, particularly in autism.

Poster #3

Social Cognition as a Matter of Structural Brain Connections? A Systematic Review and Diffusion Weighted Imaging Meta-analysis

Rita Hansl[1,2], Lara Maliske[1], Sofie Valk[2,3,4] & Philipp Kanske[1]

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Social cognition encompasses several cognitive and affective processes essential for successful social interaction and communication (e.g. empathy, mentalizing, compassion). The interplay of the various processes necessary for understanding the thoughts and feelings of others is incredibly complex, requiring smooth interaction through efficient connections between various brain areas. Previous work has evidenced bidirectional associations between social cognitive deficits and deficient structural connectivity, suggesting that structural connectivity and white matter (WM) integrity might be an essential foundation for social cognitive abilities. The systematic review and meta-analyses aims to integrate the growing body of literature on associations between WM integrity and metric measures of social cognitive abilities across cohorts. Quantitative meta-analysis of diffusion weighted whole-brain imaging data is aimed to reveal the WM tracts most strongly associated with the investigated social cognitive construct. Meta-analyses of ROI-based studies will grant insights into the relevance of frequently investigated WM tracts. Meta-regression and subgroup analysis will differentiate between investigated socio-cognitive constructs, DTI metrics, clinical diagnoses, and age groups to investigate potential category-specific effects. The study has been designed as a registered report and received in principle acceptance. It has the potential to reveal associations between global WM integrity and social cognitive abilities. Moreover, the location specific findings would lay the basis for future ROI-based investigations while socio-cognitive construct-, diffusion-metric-, and diagnosis-specific effects would allow for insights into the potentially diverging relevance of different tracts and WM properties for distinct social cognitive concepts and in different populations.

Poster #4

Cutting Calories or Cutting Corners? How Anti-Obesity Medication Use Sparks Effort-Based Sanctions and Social Penalties

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Obesity is one of the most widespread public health risks, with more than 1 billion affected individuals worldwide. While treatment with ‘anti-obesity’ medication (GLP-1 agonists) shows promising results,

patients face public backlash for 'cutting corners'. Across four preregistered studies in three countries (N = 1.205, Belgium, US, UK), we observed that this effect is driven by effort moralization. Not only were medication users perceived as less moral, but the strength of the effect was a function of differences in effort perceptions. Further, we observed effects on broader consequences (e.g., competence or deservingness perceptions) and tested candidate moderators (e.g., attitudes, experience, personality). While we consistently observed strong effects, their magnitude may have been influenced by the design choice to use a cross-sectional, within-subject vignette design. Nevertheless, our findings highlight the adverse consequences of effort-based biases experienced by patients using anti-obesity medication and underscore the need for public education and stigma reduction.

Poster #5

Moral Decisions Under Observation: Neural and Trait-based Correlates of the Audience Effect

William Wells[1], Tobias Ashdown[1] & Antonia Hamilton[1]

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Moral decision making is influenced not only by internal values but also by social con- text. One such influence, the audience effect, suggests that people may alter their moral choices when they know others are observing. This study investigates whether there are distinguishable neurological and behavioural indicators when individuals make moral decisions in private versus when their responses are publicly disclosed. Using functional near-infrared spectroscopy (fNIRS), we will examine cortical activity associated with moral reasoning under two experimental conditions: a private block, where participants respond confidentially, and a shared block, where responses are presented to a partner. Participants will also complete a Five-Factor Model (FFM) personality assessment to explore how traits like extraversion and conscientiousness may modulate the audience effect. Although data collection is ongoing, we anticipate that results will be available for presentation at the conference. We hypothesise differential hemodynamic response in the dlPFC, STS, and TPJ between the shared and private conditions, indicating social evaluative processing. We also expect individual differences in personality traits to predict sensitivity to the audience effect. This research aims to deepen our understanding of the neural and psychological mechanisms underlying social influences on moral judgement and may contribute to applied settings where ethical decisions are made under public scrutiny.

Poster #6

The Role of Empathy in Connecting Attachment Insecurity and Social Anxiety: A Transference Perspective on the Relational Self

Emrullah Ecer [1], Muazzez Deniz Barut[2], Safira Matos[2], Samantha Hellenbrand[4], Cemre Naz Tomruk[5], Ekin Ö zalp[6], Jasmina Kochanowicz[7], Karolina Zieliń ska[8] & Vera Badillo Sarabia[9]

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Although attachment insecurities are consistently linked to social anxiety disorder (SAD), the psychological mechanisms underlying this association remain insufficiently understood. Prior research has often overlooked how emotional responses toward close others, rather than strangers, shape the relational self in socially anxious individuals. Drawing on Susan Andersen's social-cognitive model of transference and the theory of the relational self, our study addresses this gap by examining the mediating role of empathy toward a close person in the relationship between attachment insecurity and SAD. Across three studies (Study 3 was preregistered) involving international students and Turkish and Polish participants (N = 739), we found that individuals with attachment anxiety exhibited higher levels of empathic distress toward a close person, which led to greater SAD. In contrast, individuals with attachment avoidance demonstrated lower levels of empathic distress and empathic concern toward a close person, which also contributed to SAD. Finally, parallel mediation analyses revealed that higher empathic distress toward a close person in individuals with attachment anxiety reduced self-compassion, which in turn increased SAD. Likewise, lower levels of perspective-taking toward a close person in individuals with attachment avoidance diminished self-compassion, resulting in greater SAD. These effects were not observed in relation to empathy toward strangers. Our findings provide the first empirical support for a transference-based model of social anxiety, where early relational schemas are reactivated in emotionally significant interactions. By highlighting the relational specificity of empathic dysregulation, this work extends Andersen's legacy and offers novel insights for therapeutic interventions targeting the relational self.

Poster #7

Moral Emotions and Moral Disengagement Behind the Wheel: A Qualitative Exploration

Haouria Basiyd Fellahi[1], Julien Cestac[1] & Patricia Delhomme[1]

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Moral emotions are central to self-regulation and norm compliance, yet their function in everyday transgressive contexts, particularly in relation to road behaviour, remains an under- explored area. Within Bandura's broader Social Cognitive framework, moral emotions act as deterrents to norm violations but may be selectively disengaged through moral disengagement (MD) mechanisms (Bandura, 1990). Through this process, individuals transgress while preserving a positive self-image. Although prior research has demonstrated a positive association between MD and transgressive road behaviour, the role of moral emotions in this process has received little attention. This exploratory study aims to address this gap by examining the relationship between moral emotions and MD during deliberate traffic violations. Semi-structured interviews were conducted with 70 licensed French drivers (57% women; 44.3% aged 25-39). The elicitation interview method was used to collect in- depth accounts of deliberate traffic violations and the conditions under which they occurred. Preliminary findings show that all 68 drivers who reported committing traffic violations employed at least one MD mechanism to justify their actions. Distortion of consequences and moral justification emerged as the most prevalent strategies, predominantly in

accounts of minor speeding. Across all violation episodes, negative moral emotions were self-reported 63 times; emotional neutrality or indifference 55 times; and positive moral emotions 14 times. Participants' probability of reporting any moral emotion decreased as the number of MD mechanisms they employed to justify a violation increased. The discussion will address how incidental emotions, road conditions, individual motivations, and sanctions shape road-specific MD.

Poster #8

A Cognitive Framework for Consensus-Reaching

Nicolas Coucke[1]

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The ability to reach consensus with others is crucial for humans to function in a society. Most research on consensus-reaching comes from the negotiation literature and has focused on how people can overcome biases or other difficulties hindering consensus. What is less understood is the minimal cognitive architecture required for reaching a consensus, and how this architecture is implemented in humans. In this theoretical work, I will use insights from prior research to sketch the cognitive architecture needed for consensus-reaching. Funda- mentally, reaching a consensus requires groups to jointly explore the possible options, learn which options correspond to one's preference, learn which options others are likely to choose, and, crucially, combine these aspects into actions that drive the decision process towards an acceptable consensus. I will combine insights from research studying these aspects individually into a comprehensive cognitive framework. Consensus problems can vary from option spaces that are small and discrete to spaces that are high-dimensional and continuous. Additionally, the nature of the consensus decision depends on the group composition, such as whether there is a conflict of interest and whether there is diversity in goals or preferences. I will discuss how the cognitive architecture should be modified to accommodate each type of consensus decision. With this work, I hope to inspire more researchers to approach consensus-reaching from a cognitive-computational perspective.

Poster #9

Moral Principle or Cognitive By-Product? A Cross-Cultural Investigation on Omission Bias

Xinyi Xu[1], Dries Bostyn[1] & Arne Roets[1]

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Omission bias refers to the tendency to judge harmful omissions as less immoral than harmful actions, even when both lead to the same negative outcome. This phenomenon, rooted in the philosophical doctrine of doing and allowing, has often been treated as a fundamental principle in moral decision-making. Although it has been extensively replicated among Western samples, very few studies have directly compared omission bias across cultures. The current study examines whether omission bias differs between Chinese and American samples and whether its underlying mechanisms remain consistent across cultural contexts. Employing a 2 (Culture: China vs. US) x 2 (Action-Omission: Action vs. Omission) between-subjects design, we collected 266 valid responses from American participants (Action: n = 129; Omission: n = 137), and 275 from Chinese participants (Action: n = 138, Omission: n = 137). Participants read four

matched scenarios, in which either an action (i.e., action condition) or an omission (i.e., omission condition) led to the same negative outcome. For each scenario, participants evaluated the main character on morality, intentionality, and causality. Multilevel parallel mediation analyses revealed that omission bias was fully mediated by variations in perceived intentionality and causality, suggesting a universal underlying mechanism. Notably, some scenario-specific deviations of omission bias were observed, driven by shifts in intentionality and causality perception. Our findings challenge the view that omission bias is a standalone moral principle. Instead, they suggest that omission bias, while universally present, is best understood as a reflection of asymmetrical attributions of intentionality and causality between actions and omissions.

Poster #10

Perceptual Judgments are Resistant to The Advisor's Perceived Level of Trustworthiness: A Deep Fake Approach

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When interacting, we almost automatically make inferences about the trustworthiness of our interaction partner. Crucially, these fast and spontaneous trustworthiness impressions influence whose information we want to integrate when making subjective, value-based decisions. However, how these impressions impact more cognitive, objective decision-making processes such as perceptual decision-making remains unknown. In Experiment One (N = 100), we applied a novel deep fake procedure to a series of computer-generated trustworthy and untrustworthy static faces to create animated versions that allow verbal interactions. In this first validation study, we showed that these animated faces maintained their initial trustworthiness impressions. In Experiment Two, these animated faces were used as advisors during a perceptual decision-making task where participants had to indicate the direction of the coherently moving dots (i.e., left or right; Random Dot Motion task). When the advice and the decision aligned participants were significantly more confident and faster. However, contrary to our expectations, these traditional advice following effects were not modulated by the perceived trustworthiness of the advisors. This suggests, that unlike subjective value-based decisions, objective decisions are less influenced by the social characteristics of our interaction partner. Alternatively, perceived trustworthiness might not be a direct predictor of advice quality in an objective task context, as a result the differences in trustworthiness impressions do not result in differences in advice implementation.

Poster Session III

Poster #1

Decision Making Underlying Aggression and Self-Harm following Social Exclusion by Friends: An Hyperscanning Study in Borderline Personality Disorder

Giovanni Bonacina[1], Lisa Wagels[1,2], Ute Habel[1,2], Rik Sijben[1] & Sara Boccadoro[1]

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Borderline Personality Disorder (BPD) is characterized by heightened rejection sensitivity and severe interpersonal dysfunction, often manifesting as self-harm or aggression following social threat. While both behaviors are highly prevalent in BPD, their underlying mechanisms remain unclear, particularly within real-life interaction contexts. This study aims to investigate how perceived social exclusion by a close friend modulates decision-making processes related to self-directed and other-directed aggression in individuals with BPD. We employ a functional magnetic resonance imaging (fMRI) hyperscanning design, allowing for the simultaneous recording of neural activity from both individuals with BPD and their close friends during real-time social interactions. Each dyad completes two experimental blocks: one following a socially inclusive experience and one following exclusion, both induced via the Cyberball task. In each block, after the Cyberball task, participants perform the Reward and Punishment Aggression Paradigm, a novel decision-making task in which individuals choose between punishing themselves or the other person in exchange for varying monetary rewards. This setup enables the analysis of both behavioral patterns and inter- brain dynamics across contrasting social contexts. We hypothesize that social exclusion will reduce inter-brain synchrony within the Theory of Mind network compared to inclusion, and increase both self-directed and other-directed aggression, modulated by individual traits such as impulsivity, aggression, and reward and punishment sensitivity. This study aims to clarify how social threat shapes decision-making in BPD, offering insights into the dynamic neural and behavioral mechanisms underlying interpersonal dysfunction. Findings may inform future interventions targeting maladaptive social responses in clinical populations.

Poster #2

Thinking about Other Minds: Investigating Belief Understanding in Animals and Our Beliefs about Animals

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In humans, belief understanding is often assumed as a benchmark for how other agents are represented, fostering research of this ability in other animals. Animal and human lives offer vastly different affordances, however, the research approach taken is often very anthropocentric. We conducted a systematic review of studies investigating belief understanding in non-human animals and humans in parallel. Results in animals

point to a discernment between experimental conditions, that often veers from the expected direction observed in humans. I will highlight some research avenues for ecologically valid ways to assess social cognition in animals, which is crucial to the progress of this field. To enable us to better assess animal cognition, we also have to inspect our own perception and biases towards them: I will additionally present a study framework (and potentially preliminary results) that sheds light on how we perceive other animals in terms of their cognitive and affective abilities. Critically, I hope to understand why eat some animals, but keep others as pets, and have little to no ethical quandaries with this contradicting behavior. Past research has focused primarily on visual features of other species (Refs), and found a link between phylogenetic distance and empathy for an animal (Miralles et al., 2019). I wish to build on this research by investigating the importance of domestication on our perception of the cognitive and emotional abilities of animals, using a combination of behavior, eye tracking, EEG, and fMRI.

Poster #3

Moral Self-Superiority and Self–Other Judgments: Divergent Patterns of Optimism and Sanctioning

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Most people feel morally superior to others, but the consequences of moral self-superiority remain understudied. We investigated how moral self-superiority priming influences estimations of the likelihood of, and proposed sanctions for, one's own and someone else's morally relevant actions. In three experiments with American students and adults from the Belgian general population (total N = 922), participants read a series of mundane, morally good or morally bad actions (manipulation of valence) and estimated the likelihood that either they or an acquaintance would perform each action (manipulation of protagonist) as well as how much praise or blame the protagonist would deserve. Prior to this task, some participants filled out a questionnaire designed to prime their moral superiority by comparing their standing on moral traits to their peers' standing. Participants in a baseline condition did not complete such a questionnaire or, in one experiment, they also rated an acquaintance's relative moral standing (manipulation of self-superiority priming). Across all studies, participants reported that they were less likely to engage in morally bad actions than their acquaintance, but not more likely to engage in morally good actions. They also reported that they would deserve less praise for morally good actions but not more blame for morally bad actions. Moral self-superiority priming amplified the self-other difference in the likelihood estimates in two experiments, but did not affect the proposed sanctions in any of the studies. Moral self-superiority priming seems to enhance comparatively optimistic moral expectations, but not comparative harshness towards the self.

Poster #4

Priming Disobedience

Louise De Meulenaer[1] & Emilie Caspar[1]

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(Dis)obedience is a fundamental aspect of our society, yet little is known about how exposure to explicit concepts of (dis)obedience influences subsequent behaviour and neural responses. This study investigates whether priming individuals with obedience, disobedience, or neutral concepts affects their likelihood of defying authority. Using a within-subject design with a between-subject priming manipulation, 118 participants first completed a baseline condition before being exposed to one of three primes (a short essay on ideas about Obedience or Disobedience, or a Control essay about animals). They then participated in an experimental task where they received orders to administer mildly painful, harmless electric shocks to another participant. Behavioural measures included rates of disobedience, reaction times, Sense of Agency, and subjective feelings of Responsibility and Empathy. EEG data were recorded to analyse event-related potentials (P3, N1, and LPP) and mid-frontal theta activity, associated with cognitive conflict and order processing. A linear mixed model approach will be used to assess the effects of priming on behaviour and neural responses, with prime and time as fixed effects and subject variability as a random effect. By exploring the cognitive and neural mechanisms underlying (dis)obedience, this study aims to provide insights into how external influences shape resistance to and compliance with authority, with potential implications for social influence, moral decision-making, and (dis)obedience in real-world contexts.

Poster #5

The Transformative Potential of Cultural Heritage: A Neuro-Physiological Study

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Recent years have seen growing evidence of the positive impact of art experiences on human wellbeing. This project explores the transformative potential of cultural heritage, using an integrative approach that combines behavioral, neural and physiological measures.

Healthy adult participants perform a laboratory-based task involving two experimental conditions. In one condition, they engage with audiovisual stimuli consisting of photographs documenting cultural heritage artifacts, accompanied by either a neutral or emotionally expressive narrative voice. In the other condition, participants view emotionally validated images with positive, negative, or neutral valence, matched in visual characteristics to the heritage stimuli. Throughout the task, participants stand on a force platform to record their Center of Pressure (COP), a marker of subtle postural shifts. In parallel, EEG recordings capture brain activity and a wearable wristband device records physiological responses.

The COP data analyses offer insight into bodily responses: emotionally engaging stimuli are expected to reduce sway variability due to attentional capture, elicit backward leaning in response for negative stimuli and forward leaning for positive stimuli. EEG analyses focus on estimating an approach–withdrawal index, based on frontal alpha asymmetry and a cognitive effort index, based on theta-band activity. Finally, skin conductance level serves as an indicator of arousal and stress.

By combining different measures, this study seeks to deepen our understanding of how cultural heritage experiences shape cognitive and emotional states. Ultimately, it aims to provide evidence-based insights

for cultural professionals on how to design emotionally resonant and mentally enriching encounters with heritage.

Poster #6

Spontaneous Mentalizing and Perceptual Decision-Making: Evidence from a Gabor Patch Task with Drift Diffusion Modeling

Maria Chiara Diana[1]

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Spontaneous mentalizing may influence perceptual decision-making. In this study, we investigate whether the visual perspective of another agent impacts perceptual sensitivity and decision-making. Participants complete a visual detection task in the presence of a task-irrelevant avatar wearing either transparent or opaque glasses, creating a belief manipulation about whether the avatar can see the stimulus. The target stimulus (a Gabor patch) may be present or absent, and its location is either congruent or incongruent with the avatar's body orientation. Accuracy, reaction times, and confidence ratings are collected. Behavioral data will be analyzed through repeated-measures ANOVAs and Drift Diffusion Modeling to assess whether decision-making parameters are modulated by the avatar's attributed visual access. If participants spontaneously take the avatar's perspective, we expect greater sensitivity and faster evidence accumulation when the avatar is believed to see the stimulus, especially in congruent trials. These findings are expected to contribute to the debate on spontaneous mentalizing and the cognitive mechanisms underlying social perception.

Poster #7

Investigating Psychological and Neuronal Correlates of Intimate Partner and Siblings Violence

Julia Schräder[1,2], Julia Koch[1,2], Linda Wilkin-Krug[3], Katja Bertsch[3] & Lisa Wagels[1,2]

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Introduction: Close relationships hold great potential but also risks of conflicts and aggression (Williams et al. 2012). The detailed understanding of conflict dynamics leading to aggression and their influencing mental health factors in cognitive and behavioral processes remain to be explored.
Methods: In an fMRI-hyperscanning setup, 40 patients with mental health disorders and varying levels of cognitive control will engage in interactive tasks with a sibling as well as with a stranger (see pre-registration: https://osf.io/9urgv). Additional 40 patients will be scanned in a semi-hyperscanning setup with their intimate partner as well as a stranger (only one being in the scanner, see pre-registration: https://osf.io/rg9df). Experimental tasks include an interactive taylor aggression paradigm assessing aggression regulation post- provocation. Additionally, dyads solve a maze task by communication in high stress condition, demanding higher cognitive control. Arousal will be measured by heart rate variability and skin conductance along with speech recordings. Longitudinal data will be collected via follow-ups at 7 days and 6 months post-experiment.

Expected Results: Using a transdiagnostic approach, close relationships and their conflict and de-escalation strategies will be investigated on psychological, behavioral, neural and verbal level. Siblings/partner are assumed to react with more aggression and blaming under high stress and provocation but are assumed to decrease this behavior more strongly than stranger-patient dyads. Verbal and mental synchronicity between individuals will serve as predictor for aggression, blaming, and task performance. The here investigated biosignatures of aggression in response to cognitive control ultimately informs personalized strategies for violence prevention in close relationships.

Poster #8

Emotional Dysregulation in the Colombian Internal Armed Conflict

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Post-traumatic stress disorder (PTSD) can develop following exposure to a traumatic event. A key factor in both the development and persistence of PTSD is emotional dysregulation (ED) (Shnaider et al., 2022). ED is generally defined as patterns of emotional experience and expression that interfere with purposeful, goal-directed behaviour (Thompson, 2019). Its role is particularly significant in individuals who have experienced chronic interpersonal trauma (Rojas-Saffie et al., 2025), such as those affected by war and violent conflict. However, this population remains underrepresented in existing research, which has historically focused on WEIRD (Western, Educated, Industrialized, Rich, Democratic) populations. The present study is an ongoing project aimed at identifying neural correlates of emotional dysregulation (e.g., N1, P2, P3, LPP) in individuals exposed to the Colombian Internal Armed Conflict. To this end, three tasks will be administered-the Emotion Recognition Task, the Emotional Oddball Task, and the Threat Processing Task-alongside electroencephalogram (EEG) recordings to examine biases in emotional processing associated with ED. Participants will include victims, ex-combatants, and a control group with no direct exposure to the conflict. Additionally, given that emotion regulation is believed to be partially influenced by parental regulation strategies and may be transmitted across generations (Bridgett et al., 2015), the study will also gather data from the subsequent generation to explore potential intergenerational effects. We hypothesize that participants with PTSD will exhibit a reduced P2 amplitude, accompanied by increased N1, P3, and LPP responses to emotional stimuli-patterns that may reflect heightened vigilance and emotional hyperreactivity.

Poster #9

Neural Signatures of Moral Erosion in Markets

Nicola Griggio[1], Sara Gorgzadeh[1], Andreas G.B. Ziegler[2], Oliver Braganza[1] & Johannes Schultz[1]

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Moral erosion is a topic of increasing interest in experimental economics. Recent research has shown that, in particular, multi-unit markets can entail a powerful erosion dynamic, leading participants to spontaneously report on stark internal moral conflicts (Ziegler et al. 2024). The neural correlates of these feelings, however, have not yet been explored. We propose to use functional magnetic resonance imaging (fMRI) to monitor participants' brain activity during market interactions. After baseline moral assessments,

participants will engage in both single-unit and multi-unit market interactions, allowing us to compare neural and behavioural shifts in moral sensitivity across market structures. This experimental design captures real-world market settings in which personal gains are contrasted with externalities, such as in air travel, arms dealing, or meat consumption. Key mechanisms include moral substitution (replacement logic), diminished social accountability, and cognitive re-framing of ethical standards. By the time of the conference, we hope to have collected our first pilot data, allowing us to perform exploratory analysis on the neural signatures of market-induced inner moral conflict.

Poster #10

Effects of Fatigue on Destructive Obedience

Kai Shaman[1] & Emilie Caspar[1]

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Previous research has shown that there are many situational factors that can impact destructive obedience (willingness to follow antisocial commands to harm or hurt others). Real-life examples suggest that fatigue may be one of such factors, yet there is a gap in the literature investigating this possible connection. The current project will investigate the effects on destructive obedience in five studies, each focused on one type of fatigue (cognitive, physical, sleep deprivation, decision, and compassion fatigue). Apart from testing whether fatigue has an effect on destructive obedience, we will investigate possible mediators driving these effects (cognitive and moral disengagement, impulsivity, empathy and downregulation of personal distress). In each study, participants will undergo two experimental sessions in pairs. In one of the sessions they will perform a (dis)obedience task (delivering painful shocks to the other participant). In the other session, this task will be preceded by a fatigue-inducing task (specific for each fatigue type). The resulting fatigue scores and obedience rates, as well as state and trait measures of cognitive and moral Disengagement, Impulsivity, Empathy, and Distress Downregulation will be collected, as well as their EEG markers (alpha power, theta/beta ratio, P3, LPP, and beta power), along with several other measures that may moderate the effects of fatigue on obedience (e.g. scores on the Aggression-Submission-Conventionalism scale).
The obedience rates in Fatigue vs No-Fatigue condition will be compared using ANOVA, and possible mediation of effects of fatigue on obedience by Disengagement, Impulsivity, Empathy, and Distress Downregulation will be investigated using mediation analysis.