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# SYNCC-IN

H O R I Z O N 2 0 2 3



Funded by  
The European Union  
101159414-SYNCC-IN-H2023

## AT A GLANCE

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In the delicate dance between caregiver and child lies the foundation of human connection. By understanding their synchrony, we unlock the keys to healthier minds, stronger relationships, and brighter futures.

## Welcome to SYNCC-IN Newsletter!



We are thrilled to introduce you to the **SYNCC-IN project** (Synchrony in Caregiver-Child Interactions across Neurodiversity). This exciting 3-year initiative, **funded by the EU Horizon program**, brings together leading researchers from **five institutions across Europe** to deepen collaboration, advance knowledge, and train diverse teams in the field of biobehavioral synchrony – the emotional, physiological, and behavioral alignment between caregivers and children – using innovative methods and interdisciplinary approaches.

# What's the project all about?

## Our goals



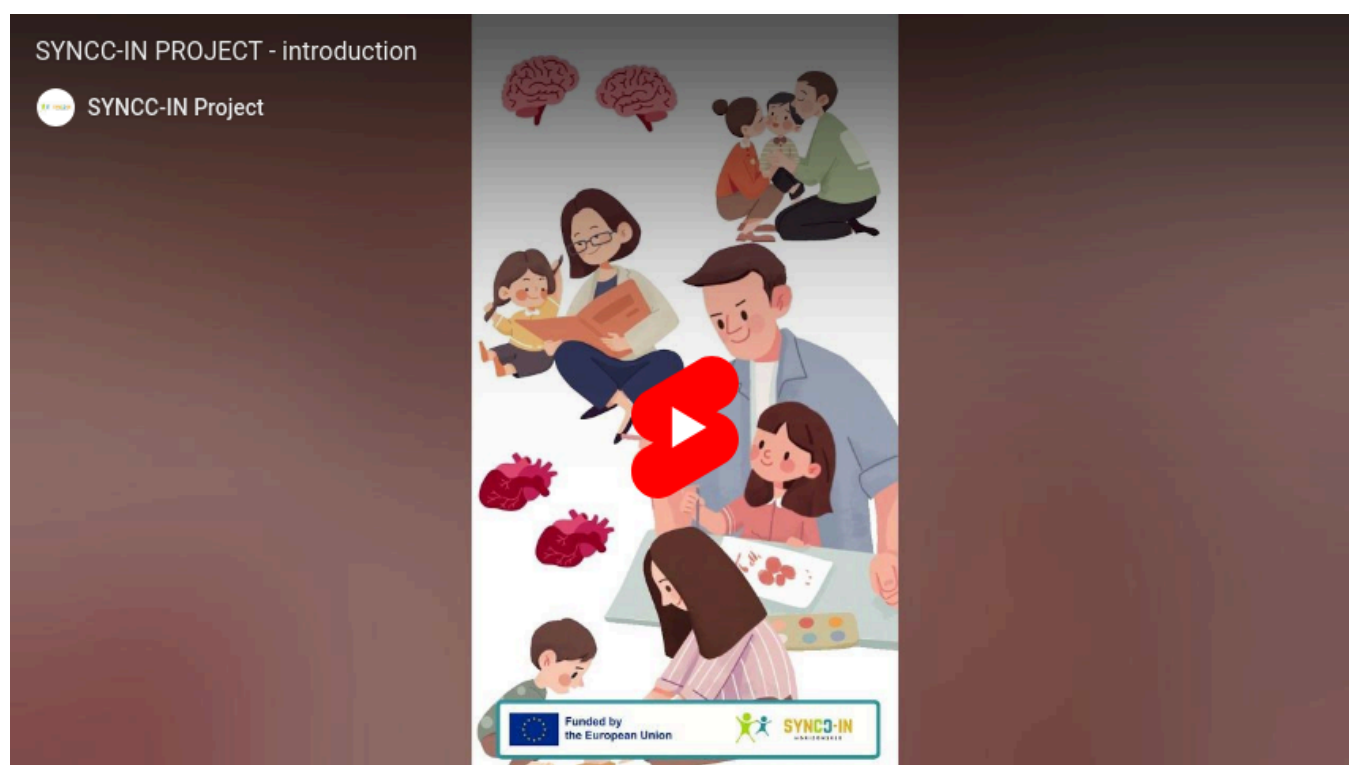
Our project investigates how the interactions between caregivers and children relate to cognitive and emotional development, particularly for children with diverse developmental needs. The SYNCC-IN team aims to:

- **Develop an international research network** focused on biobehavioral synchrony,
- **Create a Virtual Laboratory** to advance research collaboration, and
- **Establish new tools and practices** to improve educational and healthcare approaches for children.

Ultimately, SYNCC-IN seeks to build knowledge that can support healthier, happier development outcomes for children across Europe.



Watch our introduction on [YouTube](#) and get a closer look at our goals and innovative approaches!



# Meet our Team & Partners

Our team includes experts from multiple disciplines, all dedicated to deepening our understanding of early child development. Together, we are working to build a groundbreaking network of resources, knowledge, and training that supports children's development. SYNCC-IN is a joint effort led by the University of Warsaw (Poland), with partners from across Europe.



## UNIERSYTET WARSZAWSKI POLAND



Dr hab. Agnieszka Pluta



Dr Ewa Komorowska



Dr Joanna Beck



Dr Joanna Duda - Goławska



Prof. Ewa Pisula



Dr Alicja Niedźwiecka



Dr Izabela Chojnicka



MA Julia Zaborowska

## University of Warsaw

As a leader in socio-cognitive development research and biological signal processing, the University of Warsaw plays a pivotal role



Prof. Jarosław Żygierewicz



Prof. Maciej Kamiński



Dr hab. Jacek Rogala



BA Mateusz Wawrzyniak



BA Maciej Padarż

in the SYNCC-IN project. It leads efforts to establish the Virtual Laboratory for Biobehavioral Synchrony, fostering strategic collaboration and advancing interdisciplinary methods to study caregiver-child interactions.

**Website:** <https://en.uw.edu.pl>



## KOBENHAVNS UNIVERSITET DENMARK



Prof. Victoria Southgate



Dr Dora Kampis



MA Helle Lukowski

## University of Copenhagen

Leaders in state-of-the-art neuroscience techniques, including brain monitoring.

**Website:** <https://www.ku.dk/>



## UNIVERSITA DEGLI STUDI DI TRENTO ITALY



Prof. Gianluca Esposito



Prof. Claudio Mulatti



Dr Andrea Bizzeo



MS Alessandro Carollo

## University of Trento

Experts in data analysis for child development.

**Website:** <https://www.cogsci.unitn.it/en>



## RUPRECHT-KARLS-UNIVERSITAET HEIDELBERG GERMANY



Prof. Sabina Pauen



Dr Cecil Mata



Dr Trinh Nguyen

## University of Heidelberg

Specializing in caregiver-child physiological and behavioral interactions.

**Website:** <https://www.uni-heidelberg.de/en>



## UNIVERSITA DEGLI STUDI DI MILANO ITALY



Prof. Maria Lorella Gianni



Prof. Monica Fumagalli



Dr Daniela Morniroli

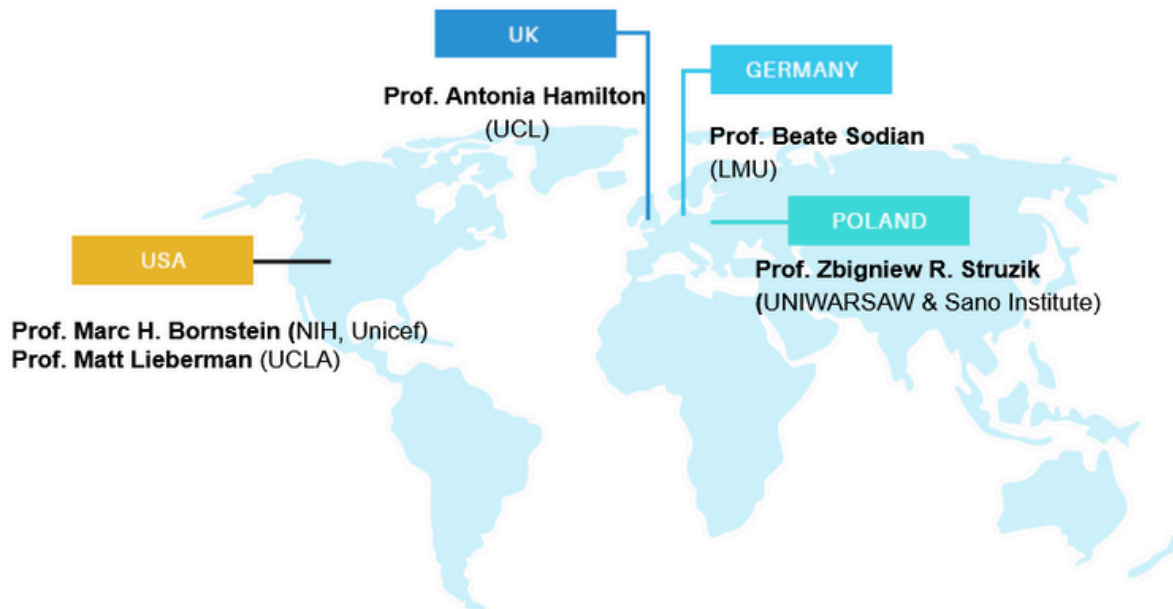
## University of Milan

Focused on developmental outcomes in infants.

**Website:** <https://www.cogsci.unitn.it/en>

# Meet our Advisory Board

As with many EU-funded projects, SYNCC-IN benefits from the guidance of an **Advisory Board**, a group of world-renowned experts who provide strategic direction, ensure high ethical standards, and help maximize the scientific and societal impact of the project. Their role is crucial in maintaining transparency, fostering innovation, and ensuring our research aligns with both academic and public interests.



Our Advisory Board includes:

- **Prof. Beate Sodian** (LMU, Germany) – A leading scholar in social development, specializing in theory of mind development in children with neurotypical and neuroatypical trajectories.
- **Prof. Antonia Hamilton** (UCL, UK) – Renowned for her work on social skills in autism and the neural mechanisms of social interaction.
- **Prof. Marc H. Bornstein** (NIH, Unicef, USA) – An expert in mother-child interaction, biobehavioral synchrony, and neuroimaging.
- **Prof. Zbigniew R. Struzik** (UNIWARSAW & Sano Institute, Poland) – A pioneer in biosignal analysis and fetal-maternal heart rate coupling.
- **Prof. Matt Lieberman** (UCLA, USA) – A founding figure in social neuroscience, specializing in neural synchrony during naturalistic interactions.



To learn more about their expertise and contributions, scan the QR code below to visit our [website](#). You'll find detailed profiles and insights into their role in advancing the SYNCC-IN mission.



# What Happened in SYNCC-IN?

It's been a busy and productive start for the SYNCC-IN team, with plenty of meetings, brainstorming, and exciting preparations setting the stage for our research.

## Meetings, meetings, meetings



Collaboration is at the heart of SYNCC-IN, and we've hit the ground running with a series of engaging planning sessions involving our European partners.

On **October 25, 2024**, we officially launched the SYNCC-IN project with an inspiring kick-off meeting that brought together researchers, stakeholders, and our Advisory Board. Highlights of the event included **three beautiful keynote talks** from renowned experts in the field, offering insights into the science and vision driving our project.

If you missed it, you can watch on [YouTube](#) or visit our [website](#).

## Kick-Off Meeting: The Start of an Exciting Journey



## Preparations for ET + EEG Setup + fNIRS



We're thrilled to announce that preparations are underway for setting up equipment to measure **eye-tracking (ET)** and **electroencephalography (EEG)**—essential tools for studying synchrony at the behavioral and neural levels.

Our technical teams are working hard to finalize the details, and we're excited to share photos and updates with you.

# What's Next?

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The SYNCC-IN project is progressing very quickly. Here's a look at our plans for the coming months:

## Preparing the lab...



Before we start collecting data, we need to set up and ensure that our settings in 4 different labs are as similar as possible. We've already mentioned the eye-tracking and EEG preparations, but we also need to prepare our labs (and ourselves) to use functional near-infrared spectroscopy (fNIRS), a non-invasive, infant-friendly method of studying brain activity.

## ...and preparing people!



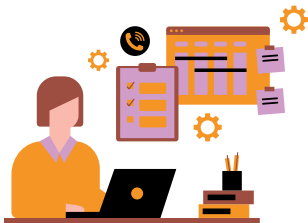
We want to start our research as soon as possible, so we are planning to start learning the key parts of our study procedures in early March. One of these is SECORE (Self- and CO-Regulation), a semi-experimental procedure with a standardised video-micro-analytic coding scheme that allows the assessment of behavioural synchrony during caregiver-child interactions. The procedure was developed at the University of Heidelberg.

## Sharing the knowledge between researchers...



Building expertise in the field of caregiver-child synchrony is central to our mission. In the coming months, we will host **two international workshops** aimed at strengthening the methodological skills of staff from the University of Warsaw and our partner institutions.

## ...and among the university administration.



Sharing knowledge is one of the main goals of our project. We want to share it not only between researchers but also between the administrative staff of all our partner universities. We will start with online Excel training in early 2025.

# Did You Know?

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## The Power of Synchrony in Human Connections



Have you ever noticed how two people talking often mirror each other's gestures or finish each other's sentences? This natural phenomenon, called **interpersonal synchrony**, goes beyond simple mimicry—it's a powerful form of connection that shapes our emotional and social well-being.

### What is Interpersonal Synchrony?

Interpersonal synchrony is the alignment of emotions, behaviors, and even biological rhythms between individuals. In the context of caregivers and children, it happens when they share matching facial expressions, coordinated movements, or even synchronized heart rates and brain activity during meaningful interactions. These moments of connection are the foundation for trust, communication, and learning.

### Why Does It Matter for Children?

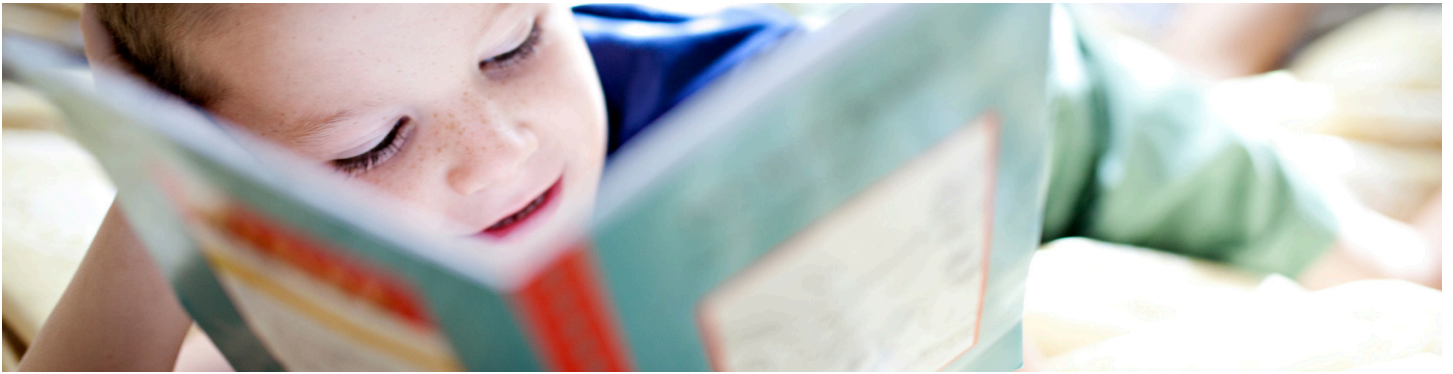
For children, synchrony with a caregiver is essential for healthy development. When a caregiver responds to a child's cues—like calming them when they cry or sharing in their joy—it strengthens the child's ability to regulate emotions and builds their sense of security. Over time, this can:

- Improve their **social skills**, like empathy and cooperation.
- Boost their **cognitive development**, including problem-solving and attention.
- Reduce the risk of behavioral issues, anxiety, or depression.

### The Science Behind It

Research shows that synchronized brain activity between parents and children, measured through advanced tools like fNIRS or EEG, is linked to better problem-solving and emotional understanding. Even simple activities, like playing or singing together, can create these "in-sync" moments that support a child's growth.

At SYNCC-IN, we're delving deeper into these fascinating processes to uncover how synchrony can help children thrive—no matter their developmental background. Together, we can unlock the science of connection to build brighter futures for all children.



## Further Readings

Curious to dive deeper into the science of caregiver-child synchrony? This fascinating field has inspired groundbreaking research exploring how these interactions shape developmental outcomes. Below are two pioneering studies that lay the foundation for understanding biobehavioral synchrony in parent-child dyads.





### Links to supplementary material

Feldman, R. (2007). Parent-infant synchrony: Biological foundations and developmental outcomes. *Current Directions in Psychological Science*, 16(6), 340–345. <https://doi.org/10.1111/j.1467-8721.2007.00532.x>

Leclère, C., Viaux, S., Avril, M., Achard, C., Chetouani, M., Missonnier, S., & Cohen, D. (2014). Why synchrony matters during mother-child interactions: a systematic review. *PLoS one*, 9(12), e113571. <https://doi.org/10.1371/journal.pone.0113571>

Stay tuned for updates on our website and social media! We're excited to share this journey with you.

### STAY CONNECTED

-  **Website:** <https://synccin.uw.edu.pl>
-  **Facebook:** <https://www.facebook.com/people/Syncc-in-project/61566761616576/>
-  **Instagram:** <https://www.instagram.com/synccinproject/>
-  **YouTube:** <https://www.youtube.com/@SYNCC-IN>



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