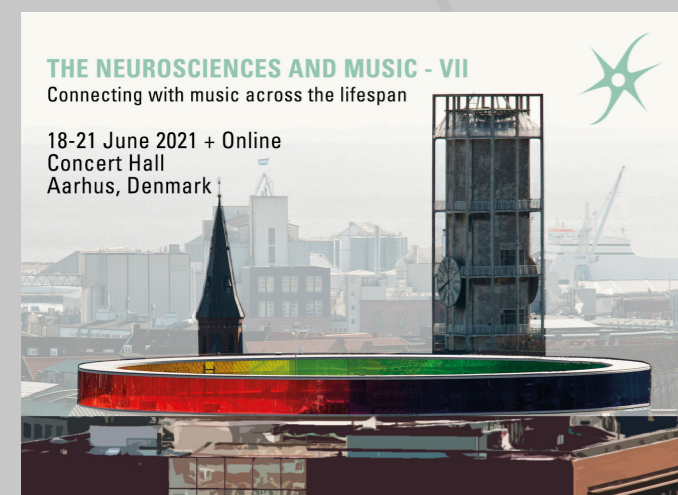


CENTER FOR MUSIC IN THE BRAIN

by Peter Vuust

For Center for Music in the Brain - as for most other institutions - the years 2020 and 2021 were to a great extent shaped by Covid-19. Luckily, the pandemic arrived in between the two funding periods of the center where most of our PhD students were in the later phase of their studies and had already collected their data. But with more than half of 2020 away from the offices, we all had to adjust. We managed to move our lab meetings, research clubs, one-on-one meetings, and guest talks to online platforms. Getting used to such new ways of collaborating has in many ways been a positive learning experience, which may help us towards more efficient working practices in the future. Most importantly, it has fertilized the ground for several new international collaborations and paved the way for future research stays for our PhD students and postdocs. However, our core activity - carrying out research on human beings - was greatly challenged with the country in lock-down during 2020 and the scanners closed. Therefore, we turned to other data sources, for instance our Spotify project that allows for correlating our music choices with daily behaviour.

Overall, the productivity of MIB was not influenced by the pandemic, and we published many important experimental and theoretical papers in 2020. Many of the 2020 papers illustrate the extensive international network which MIB is nested in such as Finnish professor Petri Toiviainen's seminal *NeuroImage* paper on the brain networks underlying the musical beat - the result of a longtime collaboration with MIB professor Elvira Brattico - and the paper in *NeuroImage* on musical groove by Canadian PhD student Tomas Matthews and Senior Birmingham Fellow Maria Witek. Tomas has continued his career as postdoc at MIB where he started his new position in the autumn of 2021.



2020 saw no less than five successful PhD defenses at MIB: Marianne Tiihonen, Patricia da Mota, Leonardo Bonetti, Pauline Cantou and Stine Derdau all defended their theses, and in all cases the candidates have been given jobs at MIB, with other research groups or in the industry.

In 2020 MIB professor Morten Kringelbach finalized an extraordinary initiative. The Carlsberg Foundation and the American Pettit Foundation each donated £ 1 million for the creation of the "Erel Shalit Carlsberg Foundation Research Fellowship" in "Behavioural Neuroscience" at The Linacre College in Oxford. As the chair of this programme, Professor Kringelbach leads the new interdisciplinary "Centre for Eudaimonia and Human Flourishing", which perfectly complements our research at MIB. Overall, this new angle on music and well-being fits well with the conclusions of a new international report 'Music on Our Minds: The Rich Potential of Music to Promote Brain Health and Mental Well-Being' from AARP: Global Council on Brain Health, which we helped shape and write at the start of the pandemic.

A consequence of Covid-19 was that we sadly had to postpone the Music and Neurosciences Conference VII and the preceding summer school from 2020 to June 2021 where they both took place as partly online events.

There is no doubt that for most of us, hosting the Neuroscience and Music VII conference in June 2021 at the Aarhus Concert Hall and online will remain the strongest memory from that year. This event is the most important conference on music and neuroscience worldwide - held only every third year and always with the most prominent researchers within the field of music and brain as speakers. Pioneering this event for the first time as a hybrid conference took its toll, but everyone at MIB and the Mariani Foundation made a massive effort, and the conference was a huge success with 100 onsite participants and more than 400 online participants.

Leading up to the conference our Summer School, led by Professor Elvira Brattico, debuted in an online version with 27 participants featuring prominent speakers such as Professors Robert Zatorre and David Huron. The summer school will be a biennial event from now on and has been approved as a part of 'Summer University' at Aarhus University.

The year of 2021 became the most productive year in terms of publications in MIB's existence, evidenced by 62 published papers compared to an average of 37 over the first six years of MIB. This was partly caused by Covid-19 and the consequent national lock-downs both in 2020 and in the first half of 2021, which gave us the possibility to focus on analyzing already collected data and writing up papers.

The rise in quantity was coupled with an equally enhanced quality of the papers, where 27 of the papers were published in journals with an impact factor of more than five. These publications strike an excellent balance between theoretical and experimental papers: some papers lay out the theoretical fundament for the research into music and brain and contribute with new analytical tools and methods, which are then used and tested experimentally.

The beginning of our 2nd period as a Center of Excellence coincided with returning to the offices after the 2021 national lock-down due to Covid-19. Soon the offices were buzzing with activity with the arrival of nothing less than 5 new PhD students: Gemma Fernandez Rubio, Alberte Seeberg, Mathias Klarlund, Olivia Foster Vander Elst and Rebecca Scarratt.

In July, Christine Ahrends defended her PhD thesis investigating the role of predictability and uncertainty in human brain dynamics, and she has continued her career as a postdoc at CFIN. Victor Pando defended his PhD thesis in September on musical groove in Parkinson's patients and was subsequently employed as postdoc at MIB.

In November, we were extremely happy and proud to be joined by our new professor, Peter Keller. Peter has been a good friend and collaborator for years, and he is a perfect fit for MIB with his expertise. His main interest into musical interaction, of which he is a world-leading expert, coincides exactly with the goal of our second funding period which focuses on the role of music in establishing, maintaining and fine-tuning meaningful human relationships and interactions.

Read more about scientific progress and key events in 2020 and 2021 in Center for Music in the Brain's own annual reports that can be downloaded from the MIB website: <https://musicinthebrain.au.dk/annual-reports>

NEW FACE at MIB

Professor Peter Keller joined MIB and the Department of Clinical Medicine in November 2021. Prior to that, he was Director of Research and leader of the 'Music Cognition and Action' research program in the MARCS Institute for Brain, Behaviour and Development at Western Sydney University in



Australia. After initial training in music performance, as an orchestral trombonist, Peter obtained degrees in Musicology and Composition, and Psychology, and a PhD in Psychology from the University of New South Wales in Australia. Past appointments include research positions at Haskins Laboratories and Yale University, Max Planck Institute for Psychological Research, and Max Planck Institute for Human Cognitive and Brain Sciences, where he led the Max Planck Research Group for Music Cognition and Action. His service to the field includes being former editor of the interdisciplinary journal *Empirical Musicology Review*, past editorial board member at *Advances in Cognitive Psychology*, *Royal Society Open Science*, and *Psychological Research*, and current membership on editorial boards at *Music Perception* and *Psychomusicology: Music, Mind, and Brain*.

Peter's research addresses the psychological processes and brain mechanisms that allow people to interact and communicate through music. His work is guided by the overarching assumption that music making in groups is a 'microcosm' of human interaction. The central idea behind this assumption is that participation in collective musical activities draws on sensory, perceptual, cognitive, motor, and emotional processes that support other forms of social behaviour in everyday life. Conceptualising music as a readily controlled microcosm has the practical benefit of highlighting its potential as a domain for studying social cognition and collective behaviour more generally. The implications of his research program therefore extend beyond music science to the broad disciplines of cognitive neuroscience and psychology.

Peter Keller gave his inaugural lecture as new Professor at Aarhus University on 12 May 2022. The talk was entitled "Human Interaction Through Music: From Psychology to Neuroscience and Beyond".

