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TwinBrain Newsletter

December 2021

READ ABOUT THE LATEST NEWS FROM THE TwinBrain PROJECT TEAM

Intro from the Principal Investigator

TwinBrain Workshop 1.0: Mobile Brain/Body Imaging (MoBI), Berlin, Germany

TwinBrain Summer School on Motion Neuroscience, Piran, Slovenia

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Discussing the crossroads of science, Trieste, Italy

About the TwinBrain project



A word from the Principal Investigator

The first year of the TwinBrain project is drawing to a close and we are pleased to share with you what we have been doing over the last 12 months. It has been an exciting time as we set up operations and implemented the first key activities of the project. From our first workshop and summer school to the opening of a new SloMoBIL laboratory in Koper, Slovenia, the project partners have worked hard to stay on track and bring the project to a successful conclusion of its first year.

A big thank you goes to all the project partners, specifically Technische Universität Berlin (TUB; Dr. Klaus Gramann and his excellent BeMoBIL team) and the team at ZRS Koper who made sure that the wheels kept running in the background.

- > Looking ahead to 2022, I am excited about the upcoming project activities and look forward to welcoming many of you to the next edition of the TwinBrain Summer School, workshop, roundtables and much more. TwinBrain activities in 2022 foresee close collaboration with two other consortium partners, Université de Genève (UNIGE) for the implementation of advanced brain imaging techniques and Università degli Studi di Trieste (UNITS) where we aim to transfer knowledge into clinical practice.

May the upcoming year be full of success and new discoveries. Happy 2022!



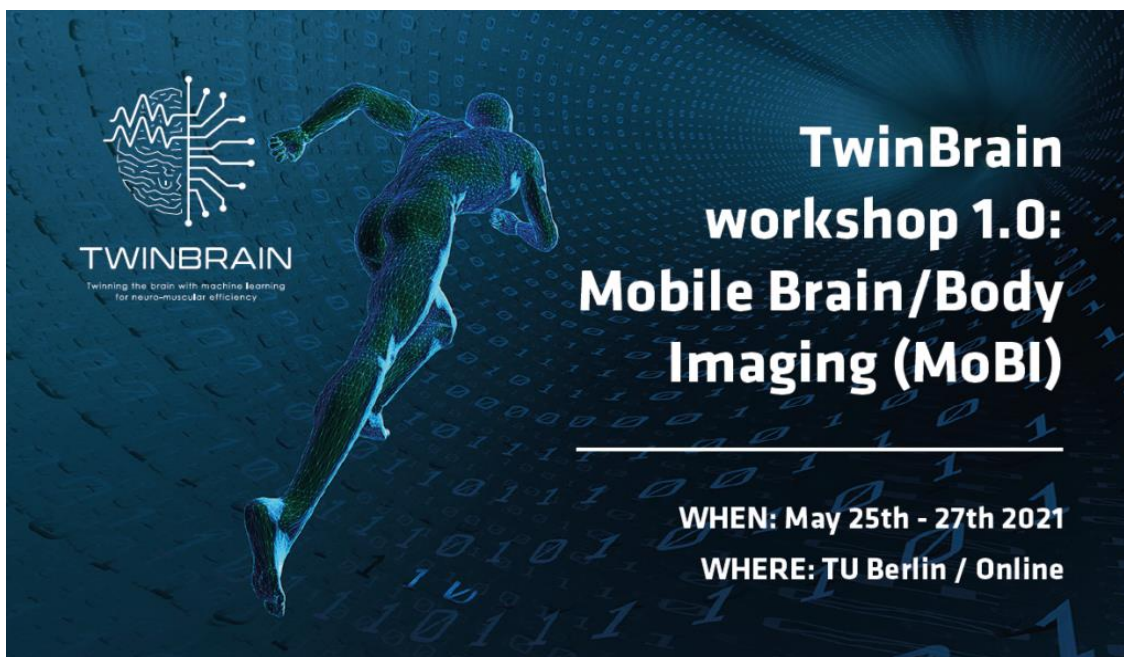
Dr. Uroš Marušič

TwinBrain Workshop 1.0: Mobile Brain/Body Imaging (MoBI), Berlin, Germany

The Berlin Mobile Brain/Body Imaging labs (BeMoBIL) at TUB Berlin hosted the first MoBI workshop between 25 and 27 May 2021. The workshop was streamed live allowing for interactions among participants and presenters, and provided a platform for discussion among researchers and students interested in Mobile Brain/Body Imaging (MoBI). Among the speakers were Klaus Gramann, Uros Marusic, Johanna Wagner, Martin Seeber, Sarah Blum, Laurens Krol, Sein Jeung, Marius Klug, Anna Wunderlich, Daniel P. Ferris (keynote), Bettina Wollesen, Benedikt Ehinger and Olaf Dimig.

This was the first in a series of TwinBrain Workshops, with the next one planned to take place in May 2022 in Koper, Slovenia.

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The poster features a central image of a human figure in a running pose, rendered in a blue, wireframe-like style. To the left is the TwinBrain logo, which consists of a brain silhouette with circuit-like lines extending from it. Below the logo is the text 'TWINBRAIN' and 'Twinning the brain with machine learning for neuro-muscular efficiency'. To the right of the figure, the main title 'TwinBrain workshop 1.0: Mobile Brain/Body Imaging (MoBI)' is written in large, bold, white letters. Below the title, the dates 'WHEN: May 25th - 27th 2021' and the location 'WHERE: TU Berlin / Online' are listed in white text. The background is dark blue with a pattern of binary code (0s and 1s).



This workshop is part of a project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°952401



BeMoBIL - TU Berlin
Berlin Mobile Brain/Body Imaging Lab



TwinBrain Summer School “Neuroscience of movement”, Piran, Slovenia

The “Neuroscience of movement: Exploring the dynamics of the human brain in motion” TwinBrain Summer School took place in July 2021 in Piran, Slovenia, and online. The summer school was intended for doctoral and master’s students in the fields of kinesiology, physiotherapy, psychology, cognitive science, biomedical engineering, and other related sciences.

A total of 76 active students from 13 world countries participated in lectures and workshops delivered by internationally acclaimed lecturers, including

- > Uroš Marušič (Slovenia), Bettina Wollesen (Germany), Claudia Voelcker-Rehage (Germany), Eling De Bruin (Sweden), Rachael D. Seidler (USA), Rado Pišot (Slovenia), Boštjan Šimunič (Slovenia), Ramona Ritzmann (Switzerland), Sidney Grospretre (France), Aleš Holobar (Slovenia), Florian Giesche (Germany), Kevin De Pauw (Belgium), Milos Ajcevic (Italy), Aleksandar Miladinovic (Italy), Robert Stojan (Germany), Klaus Gramann (Germany), Martin Seeber (Switzerland), Eduardo Bodnariuc Fontes (Brazil).



The next edition of TwinBrain Summer School will take place in July 2022 in Piran, Slovenia.

TwinBrain summer school 1.0
*Neuroscience of movement:
Exploring the dynamics
of the human brain in motion*


WHEN: July 6th - 10th 2021
WHERE: Piran (Slovenia) / Online

Detailed information and registration on
www.twinbrain.si and TwinBrain social media


No registration fee
Limited no. of registrators



This data/document/report is part of a project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 952401



www.twinbrain.si
www.twitter.com/TwinBrainEU
www.facebook.com/TwinBrainEU



Participants of the TwinBrain summer school 1.0

Establishment of the SloMoBiL laboratory in Koper, Slovenia

SloMoBiL: Slovenian Mobile Brain/Body Imaging Laboratory was inaugurated within the Scientific Research Center (ZRS) Koper in July 2021. Equipped with the latest technology to research neuromuscular efficiency, the lab will make an important contribution to conducting research aimed at an in-depth understanding of our brains during movement. The SloMoBiL laboratory is one of the few labs in the world that uses this type of cutting-edge technology.



> It enables a thorough understanding of brain dynamics under non-static conditions and therefore mimics real-life situations to closely understand complex processes of embodied cognition.



Discussing the crossroads of science, Trieste, Italy

Dr. Uroš Marušič and Dr. Rado Pišot presented the TwinBrain project as part of their lecture about Parkinson's disease in the field of neuroscience, robotics, and movement during the 10th Trieste Next event, which hosted 200 lecturers from various fields of study. The event was accompanied by 100 meetings and 200 accompanying events.





About the TwinBrain project

The investigation of brain dynamics in most routine movements such as walking, balancing or learning new motor-cognitive tasks remains a major challenge for neuroscience. An integrative approach to investigating brain and movement dynamics was recently developed under the term MoBI: Mobile Brain/Body Imaging. This technique is based on mobile electroencephalography (EEG) synchronized to motion capture to better understand the relationship between brain dynamics, movement, and cognition in more realistic (everyday) environments. Development and optimization of this technique will provide new analytical methods for high-dimensional MoBI data in ecologically valid contexts, work with data that is not yet standard in the field of human neuroscience, and lead EEG research out of the laboratory environment into everyday situations, which become more challenging for the symptomatic population.

The overall objective of TwinBrain project is to improve the scientific and technological capacity of the country with low R&I performance (Slovenia) by twinning it with three leading international research institutions (from Germany, Switzerland, and Italy). Leading researchers in the field of neuro-muscular control, MoBI and the neuroscientific investigation of embodied cognitive processes as well as machine learning will form a network of excellence that will facilitate training and early-stage research growth through the exchange of best practices, workshops and summer schools. TwinBrain will also provide short term on-site trainings, expert visits and exchanges, as well as start working on future joint research proposals and PhD projects among partners and beyond to be continued after the completion of the project. These will lead to strengthening of long-term infrastructure capacities and facilitate the development of the proposed research area and related careers.



UNIVERSITÉ
DE GENÈVE



UNIVERSITY
OF TRIESTE



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2022

**Only trust in knowledge
can lead to a better tomorrow.
We wish you a happy 2022!**

