



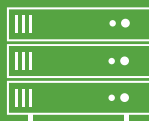
Human Brain Project
Education Programme

7th HBP STUDENT CONFERENCE ON INTERDISCIPLINARY BRAIN RESEARCH

18–20 JANUARY 2023

REY JUAN CARLOS UNIVERSITY MADRID, SPAIN

SCIENTIFIC PROGRAMME



EVENT APP:

1. Download the EventMobi App www.eventmobi.com/app/
2. Enter the EventCode hbpsc2023
3. Login with the email address you have used during registration.

The platform will ask you to create a password upon first login.

You can also access the Virtual Platform via Browser:
<https://eventmobi.com/hbpsc2023> or by scanning the QR code:

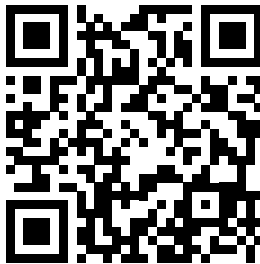


TABLE OF CONTENTS

- 3 [ABOUT THE CONFERENCE](#)
- 7 [SCIENTIFIC PROGRAMME](#)
- 12 [WORKSHOP DESCRIPTIONS](#)
- 17 [STUDENT SESSIONS I – IV](#)
- 22 [LIST OF POSTERS - POSTER SESSION I](#)
- 29 [LIST OF POSTERS - POSTER SESSION II](#)

EVENT WEBSITE:



www.humanbrainproject.eu/education-training-career/HBPSC2023

ABOUT THE CONFERENCE

The human brain is such a complex system that it can only be understood by combining knowledge and practices from multiple scientific fields. The 7th HBP Student Conference on Interdisciplinary Brain Research provides an open forum for the exchange of new ideas among early-career researchers working across various sciences relevant to the Human Brain Project (HBP). Attendees will be exposed to the data-driven and multidisciplinary brain research approach of the HBP and have the opportunity to use the EBRAINS platform. The conference offers a space for extensive scientific dialogue, both intra- and interdisciplinary, among peers and faculty through a variety of discussion sessions, lectures, workshops & hands-on training sessions and social events. It will take place in Madrid, Spain and online, organised and supported by the HBP Education Programme.

Conference Programme Committee:

Conference Chairs:

Sandra Diaz | Forschungszentrum Jülich
Paschal Ochang | De Montfort University

Programme Committee:

Nicolás Cano-Astorga | Cajal Institute
Joana Covelo | August Pi i Sunyer Biomedical Research Institute
Carmen Lupascu | Italian National Research Council
Taylan Özden | Technical University of Darmstadt
Jens Egholm Pedersen | KTH Royal Institute of Technology
Sergio Plaza | Cajal Institute
Giuliano Santarpia | Forschungszentrum Jülich
Alper Yegenoglu | Forschungszentrum Jülich

Local Hosts:

Susana Mata | Rey Juan Carlos University
Luis Pastor | Rey Juan Carlos University
Óscar David Robles Sánchez | Rey Juan Carlos University

Organisers:

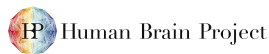
HBP Education Programme | Medical University Innsbruck

Venue:

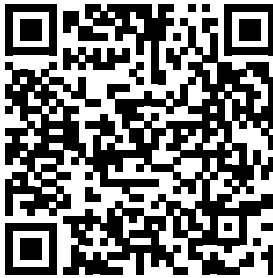
Universidad Rey Juan Carlos:
Sede Madrid-Argüelles
Calle de Quintana, 21
28008 Madrid
Spain

Further information:

www.humanbrainproject.eu/education-training-career/HBPSC2023



PROGRAMME AT A GLANCE:



https://www.dropbox.com/sh/0mwahuaih3830yz/AAC5hp_-F121nlZgaHuwfiQa?dl=0

The background features a large white diamond shape centered on a green background. The green background is composed of diagonal stripes in two shades of green, creating a geometric pattern. The text "SCIENTIFIC PROGRAMME" is centered within the white diamond.

SCIENTIFIC PROGRAMME

- 08:30 – 09:00 Registration
- 09:00 – 09:30 **Welcome & Introduction**
Sandra Diaz | Forschungszentrum Jülich
Paschal Ochang | De Montfort University
Local Host Representative | Rey Juan Carlos University
- 09:30 – 10:30 Keynote Lecture I:
Brain connectomics: From Cajal to present
Javier de Felipe | Cajal Institute

Chair: Sergio Plaza | Cajal Institute
- 10:30 – 11:30 **Student Session I: Theoretical Neuroscience**
Chair: Paschal Ochang | De Montfort University
- 11:30 – 12:00 Coffee break
- 12:00 – 13:00 Keynote Lecture II:
Brain Communication rules for flexible behaviour
Helen Barbas | Neural Systems Laboratory, Boston University

Chair: Nicolás Cano-Astorga | Cajal Institute
- 13:00 – 14:00 Lunch break
- 14:00 – 15:00 Keynote Lecture III:
Studying cortical development through the lens of human disorders
Gaia Novarino | Institute of Science and Technology Austria

Chair: Giuliano Santarpia | Forschungszentrum Jülich
- 15:00 – 16:00 **Student Session II: Systems & cognitive neuroscience**
Chair: Sandra Diaz | Forschungszentrum Jülich
- 16:00 – 16:30 Coffee break
- 16:30 – 16:50 **EBRAINS: Enabling the future of brain research**
Paweł Świeboda | EBRAINS AISBL

Chair: Sandra Diaz | Forschungszentrum Jülich
- 16:50 – 18:20 **Poster Session I**
- 18:20 **Networking Session**

- 08:30 – 09:00** Registration
- 09:00 – 11:30** Parallel workshops:
- Workshop I (Room 603):
Now you see it more! Hands-on Visualisation and modelling tools for neuroscience on EBRAINS
Óscar David Robles Sánchez, Susanna Mata | University Rey Juan Carlos Madrid
Sandra Diaz | Forschungszentrum Jülich
 - Workshop II (Room 502):
Responsible Brain Research:
Addressing dual use of concern and misuse issues
Inga Ulnicane | De Montfort University
Manuel Guerrero | Uppsala University
 - **Cancelled!** - Workshop III (Lecture Hall):
What shapes the brain? About the importance of considering diverse variables in brain research and related fields
Karin Grasenick | convelop cooperative knowledge design gmbh
 - Excursion (National History Museum):
A visit to the Cajal Legacy:
Approaching the early steps of modern neuroscience
- 11:30 – 12:00** Coffee break
- 12:00 – 13:00** Student Session III: Modelling, simulation & neuro-inspired technologies
Chair: Jens Egholm Pedersen | KTH Royal Institute of Technology
- 13:00 – 14:00** Lunch break
- 14:00 – 15:00** Keynote Lecture IV:
Meta-Learning in Neuromorphic Hardware with Surrogate Gradients
Emre Neftci | Forschungszentrum Jülich

Chair: Jens Egholm Pedersen | KTH Royal Institute of Technology
- 15:00 – 16:00** Student Session IV: Medical informatics & clinical neuroscience
Chair: Carmen Alina Lupascu | Italian National Research Council

THURSDAY 19 JANUARY 2023

This programme is subject to change.

16:00 – 16:30 Coffee break

16:30 – 18:00 **How to collaborate: Ask me anything!**

Speakers:

Karin Grasenick | convelop cooperative knowledge design gmbh

Viktor Jirsa | Aix-Marseille University

William Knight | De Montfort University

Michele Migliore | Italian National Research Council

Moderators:

Carmen Alina Lupascu | Italian National Research Council

Taylan Özden | Technical University of Darmstadt

Alper Yegenoglu | Forschungszentrum Jülich

18:00 – 19:30 **Poster Session II**

FRIDAY 20 JANUARY 2023

08:30 – 09:00 Registration

09:00 – 11:30 **Parallel workshops:**

- Workshop IV (Room 502):
Bio-inspired deep learning with Norse and PyTorch
Jens E. Pedersen, Harini Sudha Jembu | KTH Stockholm
Christian Pehle | University of Heidelberg
- Workshop V (Room 603):
Tools and workflows for realizing your scientific use cases in EBRAINS
Claudia Bachmann, Marissa Diaz Pier | Forschungszentrum Jülich
Sofia Karvounari, Eleni Mathioulaki | Athena Research Center
- Workshop VI (09:00 – 10:00 | Lecture Hall):
**Responsible Brain Data Governance:
Ethical and Legal Considerations**
Damian Eke, William Knight, George Ogoh | De Montfort University

FRIDAY 20 JANUARY 2023

- Workshop VII (10:15 – 11:30 | Lecture Hall):
How to translate your research results to the scientific, industrial, and clinical markets? Practical insights on entrepreneurship, business models, and funding-related strategies
Blanca Beltrán, Alejandro Fernández, Guillermo Velasco |
Universidad Politécnica de Madrid
Javier Mínguez | Bitbrain
- Excursion (National History Museum):
A visit to the Cajal Legacy:
Approaching the early steps of modern neuroscience

11:30 – 12:00 Coffee break

12:00 – 13:00 Keynote Lecture V:
Multiscale brain modelling for clinical translation in EBRAINS
Viktor Jirsa | Aix-Marseille University
Chair: Sandra Diaz | Forschungszentrum Jülich

13:00 – 13:45 Plenary Discussion: The future of neuroscience research
Javier de Felipe | Cajal Institute
Viktor Jirsa | Aix-Marseille University
Susana Mata | Rey Juan Carlos University
Emre Neftci | Forschungszentrum Jülich
Moderators:
Sandra Diaz | Forschungszentrum Jülich
Paschal Ochang | De Montfort University

13:45 – 14:00 Awards & Remarks

14:00 – 19:45 Closing Reception with a guided tour of the Royal Palace in Aranjuez

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WORKSHOP DESCRIPTIONS

WORKSHOP I:

Now you see it more! Hands-on Visualisation and modelling tools for neuroscience on EBRAINS

Extracting useful information from experimental and simulated data is not a straightforward endeavour. The easy representation of models and their interaction with data sources and other simulation and analysis tools is also becoming essential to gain new knowledge and leverage the emerging software infrastructure to study the brain.

We will introduce different visualisation tools which can be used to interactively create, explore and analyse experimental and simulated data, extracting useful information. These tools span along different spatial and temporal scales which describe the function of the brain.

Students will be able to perform different visual exploratory analysis tasks on brain activity datasets from simulations as well as on connectivity data using tools that are currently available as services of EBRAINS.

Finally, we will engage with the attendees in order to know more about their specific scientific projects, about how their interests are covered by the use cases shown, as well as to help them identify the right set of tools from the EBRAINS infrastructure to visualise and interact with data, models and simulations.

Speakers:

Óscar David Robles Sánchez, Susanna Mata | University Rey Juan Carlos Madrid

Sandra Díaz | Forschungszentrum Jülich

WORKSHOP II:

Responsible brain research: Addressing dual use of concern and misuse issues

Results of brain research, like those of any impactful research, can be used for socially beneficial as well as harmful purposes. How to facilitate beneficial uses and avoid concerning ones is one of the key questions for responsible brain research. To address this question, in the HBP, we have developed a novel approach to address dual use of concern and misuse in brain research. This approach goes beyond the traditional civil-military dichotomy understanding of dual use and considers broader political, security, intelligence and military uses of concern. A range of interdisciplinary and collaborative activities has been launched to continuously identify and discuss any potential concerns and misuse issues, to create networks of responsibility and 'safe spaces' to reflect on potential concerns and ways of addressing them. To sum up, responsible brain research involves not only assuming and taking for granted its benefits and intended uses but also continuous reflection on any potential concerns, misuses and unintended uses, and ways to address them.

Speakers:

Inga Ulinicane | De Montfort University

Manuel Guerrero | Uppsala University

CANCELLED! - WORKSHOP III:

What shapes the brain? About the importance of considering diverse variables in brain research and related fields

Interdisciplinary brain research combines the knowledge of a variety of disciplines, bringing together different insights and schools of thought. Diversity is crucial in brain research as individuals have different brains, shaped by their personal experiences and environments as well as by society.

Horizon Europe highlights the integration of the gender dimension into research and innovation content as a requirement by default. The HBP aims to play a pioneering role in promoting awareness and advancing how gender and diversity are considered in research and innovation. Examples from the field of AI and Machine Learning illustrate that diversity in research is also a key factor in technical innovations and developments.

Sex and gender might intersect with other diversity traits, such as age, race, social background or culture. Additionally, research findings might have different implications for different user groups or stakeholders. Such findings are in the focus of the debate on neurosexism, criticising that neuroscience of sex differences has partially been interpreted incorrectly to promote traditional gender roles. This debate proves the importance of considering diversity in research, which this workshop will target.

Speaker:

[Karin Grasenick](#) | [convelop cooperative knowledge design gmbh](#)

WORKSHOP IV:

Bio-inspired deep learning with Norse and PyTorch

This workshop teaches you how to exploit the thundering success of deep learning within the domain of computational neuroscience. You will learn about Norse, a bio-inspired extension of the popular deep learning library, PyTorch. Norse adds neuron primitives, plasticity, and learning algorithms to the PyTorch infrastructure, which brings three benefits we will highlight in the workshop: 1) rapid modelling and execution of experiments within minutes, 2) unrestricted combinations of biological and artificial neural network primitives and learning rules, and 3) translation of network models to high-performance computing clusters and neuromorphic hardware. Finally, the workshop provides a brief exposition on useful community-based tools to increase your productivity.

Speakers:

[Jens E. Pedersen](#), [Harini Sudha Jembu](#) | [KTH Stockholm](#)

[Christian Pehle](#) | [University of Heidelberg](#)

WORKSHOP V:

Tools and workflows for realizing your scientific use cases in EBRAINS

EBRAINS is a European research infrastructure for neuroscience that allows scientists to explore data, create models of the brain, simulate and analyse brain behaviour at multiple scales. Thereby emerging computational limitations are addressed by enabling access to high-performance computing or brain-inspired computing technologies. All results, as well as experimental data, can be shared with the community easily and robustly following FAIR principles.

This workshop will provide a quick overview of the different tools and services available in EBRAINS. As EBRAINS advocates FAIR principles, we will also show how the different tools can be integrated into FAIR workflows using Common workflow language. If participants wish to learn more about a particular tool or how to use EBRAINS for their specific use case, they may contact the workshop chair beforehand (c.bachmann@fz-juelich.de) or bring their questions with them to the event. During the workshop, we will discuss these questions interactively. Thus, the purpose of this workshop is to allow researchers to get creative and combine the various EBRAINS components to respond to existing questions and investigate new avenues through collaboration, sharing, co-design, and innovation.

Speakers:

Claudia Bachmann, Marissa Diaz Pier | Forschungszentrum Jülich

Sofia Karvounari, Eleni Mathioulak | Athena Research Center

WORKSHOP VI:

Responsible Brain Data Governance: Ethical and Legal Considerations

In this workshop, participants will learn about the responsible data governance approach created for HBP/EBRAINS and understand how to develop good data governance practices in the different stages of their data lifecycle and workflows. This is vital as the collection, processing and curation of brain data increasingly raise a number of societal concerns including privacy and confidentiality, security, trust, misuse, bias and discrimination. The concerns are compounded because brain data crosses national and regional boundary lines and interact with different ethical principles, laws, regulations, and policies. Responsible data governance is used by HBP/EBRAINS to address such issues. Data governance is a collection of principles, procedures, processes, frameworks, policies and rules that ensure acceptable, responsible, and efficient processing of data in a way to achieve organizational goals and be compliant with relevant regulations. It establishes the processes and responsibilities that ensure the availability, usability, security and quality of data processed. It defines who, what, how and when is processed in an efficient and responsible way. The idea of responsible data governance combines this description of data governance with the approach of Responsible Research and Innovation (RRI).

Speakers:

Damian Eke, William Knight, George Ogoh | De Montfort University

WORKSHOP VII:

How to translate your research results to the scientific, industrial, and clinical markets? Practical insights on entrepreneurship, business models, and funding-related strategies

The HBP Innovation team (UPM) will present several options to successfully transfer and exploit your most mature scientific achievements. Different knowledge transferring modalities will be reviewed in this session to help researchers to move, in practice, their results to the scientific, industrial, and clinical markets, thus contributing to get more positive and stronger impacts in society. Also, one neurotechnology company will be presented as entrepreneurship example.

Speakers:

Blanca Beltrán, Alejandro Fernández, Guillermo Velasco | Universidad Politécnica de Madrid
Javier Mínguez | Bitbrain

EXCURSION:

A visit to the Cajal Legacy: Approaching the early steps of modern neuroscience

Founded by Santiago Ramón y Cajal in 1920, the Cajal Institute has been devoted to the study of the nervous system, contributing to the unstoppable progress of neuroscience in the last century and becoming a worldwide reference for generations of brain researchers.

Apart from its scientific activities, the institute also keeps the Cajal Legacy, an incredible and vast collection of the belongings of Santiago Ramón y Cajal, father of modern neuroscience and Nobel prize winner in physiology and medicine in 1906. The National Museum of Natural Sciences of Madrid, in collaboration with the Cajal Institute, is now hosting an outstanding exhibition of this material. During the visit to the museum, participants will get the chance to see a unique collection of original works and drawings from Cajal, including the Nobel prize winner award, as well as some other historic pieces and tools he used to redesign neuroscience.

This visit represents a unique opportunity to experience the birth of modern neuroscience.

How to get there: The Museum is located at C/ José Gutierrez Abascal, 2. Participants could get there by metro (Metro stations of: Gregorio Marañón (lines 7 and 10), Nuevos Ministerios (lines 6, 8 and 10), República Argentina (line 6), Ríos Rosas (line 1)) and by bus (lines 7, 12, 14, 27, 40, 45, 147 y 150).



STUDENT SESSIONS I – IV

STUDENT SESSION I

THEORETICAL NEUROSCIENCE

- Ultrastructural comparison of VPM/Po layer-specific thalamocortical afferents into somatosensory cortices
[Pablo José Martín-Correa](#) | [Universidad Autónoma de Madrid](#)
- Burst-dependent plasticity and dendritic amplification support target-based learning and hierarchical imitation learning
[Cosimo Lupo](#) | [Istituto Nazionale di Fisica Nucleare](#)
- Understanding the contributions of voltage gated potassium channels to neuronal excitability by integrating transcriptomics with detailed ion channel kinetics.
[Anukrati Nigam](#) | [University of Toronto](#)
- Allosteric modulation of nicotinic Acetylcholine Receptor $\alpha 7$ studied by Molecular Dynamics
[Mariia Avstrikova](#) | [Institut Pasteur](#)
- Cortical reorganization in patients with deafferentation pain after brachial plexus avulsion or amputation
[Hanna Köhler](#) | [Jena University Hospital](#)
- Longitudinal functional connectivity changes in individuals at risk of Alzheimer's disease
[Alejandra García-Colomo](#) | [Universidad Complutense de Madrid](#)

STUDENT SESSION II

SYSTEMS AND COGNITIVE NEUROSCIENCE

- Key Ethical and Legal Principles for Global Brain Data Governance
[Paschal Ochang](#) | [De Montfort University](#)
- QBP1 peptide as a lead compound to treat Post-traumatic Stress Disorder
[Paula López García](#) | [Instituto Cajal](#)
- Incremental Awake-NREM-REM Learning Cycles: Cognitive and Energetic Effects in a Multi-area Thalamo-Cortical Spiking Model
[Leonardo Tonielli](#) | [Istituto Nazionale di Fisica Nucleare](#)
- Hippocampal activity associated with the visual processing of moving objects
[Paloma Manubens](#) | [Complutense University of Madrid](#)
- Longitudinal changes in electrophysiological functional connectivity during inhibitory control task associated with binge drinking predisposition
[Luis Anton-Toro](#) | [Center for cognitive and computational neuroscience](#)
- Impact of acute stress on central sensitization: An experimental study
[Nicole Bailey](#) | [University of British Columbia](#)

STUDENT SESSION III

MODELLING, SIMULATION & NEURO-INSPIRED TECHNOLOGIES

- Towards a fully automatic method for dendritic spine segmentation
[Isabel Vidaurre-Gallart](#) | [Universidad Rey Juan Carlos](#)
- A novel computational platform to simulate the oxygen-dependent firing behaviour of biological neural networks
[Rachele Fabbri](#) | [University of Pisa](#)
- Application of Working Memory Adapted Navigation for Human Robot Interaction in an Industrial Context
[Alice Nardelli](#) | [IIT](#)
- Early magnetoencephalography power alterations in individuals at risk for Alzheimer's disease during the retrieval phase of a working memory task with faces.
[Martín Carrasco-Gomez](#) | [Universidad Politécnica de Madrid](#)
- Biomorphic Control for High-Speed Robotic Applications
[Yannik Stradmann](#) | [Heidelberg University](#)
- Towards Meta-Learning on BrainScaleS-2
[Philipp Spilger](#) | [Heidelberg University](#)

STUDENT SESSION IV

MEDICAL INFORMATICS & CLINICAL NEUROSCIENCE

- The influence of Pavlovian conditioning-induced hallucinations on MMN amplitude
Inés Abalo-Rodríguez | Universidad Complutense de Madrid
- RNA sequencing analyses in bipolar families with multiple affected individuals
Inés García-Ortiz | Centro Biología Molecular Severo Ochoa
- Analyses of DMRT gene family susceptibility across psychiatric disorders
Jose Ignacio Gomez-Blanco | Centro de Biología Molecular Severo Ochoa
- Electroconvulsive therapy changes functional brain connectivity and TNF-alfa blood levels in depressed patients
Nadia Falhani | University of Regensburg
- Altered functional organization of iPSCs-derived Neuronal Networks in Major Depressive Disorder
Rahaf Issa | University of Regensburg

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LIST OF POSTERS
POSTER SESSION I

LIST OF POSTERS - POSTER SESSION I

- **Poster Number 1:**
Key Ethical and Legal Principles for Global Brain Data Governance
Paschal Ochang | De Montfort University
- **Poster Number 3:**
Ultrastructural comparison of VPM/Po layer-specific thalamocortical afferents into somatosensory cortices
Pablo José Martín-Correa | Universidad Autónoma de Madrid
- **Poster Number 5:**
A spiking neural network model of excitation and inhibition of primary visual cortex during fear conditioning
Alejandro Santos-Mayo | Complutense University of Madrid
- **Poster Number 7:**
Ischemic Stroke & Artificial Networks -Network performance depending on the use of expert or non-expert training data
Sophia Hemm | Jena University Hospital
- **Poster Number 9:**
Sensitivity of The Reward System In Post-Covid-Fatigue
Insa Maria Petersen | Jena University Hospital
- **Poster Number 13:**
Aging myeloid cells associated with Blood-Brain barrier dysfunction favors brain diseases
Marta Caamaño-Moreno, Sara Hiller-Vallina,
Lucía Mondéjar-Ruescas | Hospital 12 de Octubre
- **Poster Number 15:**
QBP1 peptide as a lead compound to treat Post-traumatic Stress Disorder
Paula López-García | Instituto Cajal
- **Poster Number 17:**
Evidence of different contributions of correlations and anticorrelations to network structure in AD
Ignacio Taguas | Center for Cognitive and Computational Neuroscience

LIST OF POSTERS - POSTER SESSION I

- **Poster Number 19:**
Hierarchical Optimal Sampling (HOS): a tool for managing and manipulating wide-field imaging datasets
[Irene Bernava](#) | [Istituto Nazionale di Fisica Nucleare](#)
- **Poster Number 21:**
Burst-dependent plasticity and dendritic amplification support target-based learning and hierarchical imitation learning
[Cosimo Lupo](#) | [Istituto Nazionale di Fisica Nucleare](#)
- **Poster Number 23:**
Incremental Awake-NREM-REM Learning Cycles: Cognitive and Energetic Effects in a Multi-area Thalamo-Cortical Spiking Model
[Leonardo Tonielli](#) | [Istituto Nazionale di Fisica Nucleare](#)
- **Poster Number 25:**
Exploring fractal dimensions in electrophysiological recordings of intracranial field potentials during normal and abnormal states: a preliminary study
[Ricardo Muñoz](#) | [Consejo Superior de Investigaciones Científicas](#)
- **Poster Number 27:**
Hippocampal activity associated with the visual processing of moving objects
[Paloma Manubens](#) | [Complutense University of Madrid](#)
- **Poster Number 29:**
Backpropagation biases recurrent neural network models of the brain
[Thomas Schwarz](#) | [Technical University Munich](#)
- **Poster Number 31:**
Registration of population tract-tracing experiments to the Allen Mouse Common Coordinate Framework
[Mario Rubio-Teves](#) | [Universidad Autonoma de Madrid](#)
- **Poster Number 33:**
A statistical approach for validating neuron segmentation from confocal microscopy images
[Ester Bruno](#) | [University of Pisa](#)

LIST OF POSTERS - POSTER SESSION I

- **Poster Number 35:**
Acoustic and visual mismatch negativity as potential biomarkers in schizophrenia
Hajnalka Molnár | Semmelweis University
- **Poster Number 37:**
Prevention of α -synuclein misfolding using the anti-amyloidogenic peptide QBP1 as a therapy for Parkinson's disease
María del Mar Tejero Ojeda | Cajal Institute
- **Poster Number 39:**
Longitudinal changes in electrophysiological functional connectivity during inhibitory control task associated with binge drinking predisposition
Luis Anton-Toro | Center for Cognitive and Computational Neuroscience
- **Poster Number 41:**
Application of unsupervised machine learning methodologies for the detection of electrophysiological factors predisposing to heavy alcohol consumption in teenagers
Marcos Uceta | Complutense University of Madrid
- **Poster Number 43:**
Understanding the contributions of voltage gated potassium channels to neuronal excitability by integrating transcriptomics with detailed ion channel kinetics
Anukrati Nigam | University of Toronto
- **Poster Number 45:**
Altered temporal dynamics of working memory subprocesses in fibromyalgia patients: an ERP study using the Sternberg task
María Carmen Martín-Buro | Rey Juan Carlos University
- **Poster Number 47:**
Spectral analysis of after-discharges elicited by intracranial 50 Hz stimulation of epileptic patients
Johanna Petra Szabó | National Institute of Mental Health, Neurology and Neurosurgery
- **Poster Number 51:**
Impact of acute stress on central sensitization: An experimental study
Nicole Bailey | University of British Columbia

LIST OF POSTERS - POSTER SESSION I

- **Poster Number 53:**
The cellular and molecular basis of COVID-19 effects in the retina and brain
Fabián Lombillo Alfonso | Federal University of Rio de Janeiro
- **Poster Number 55:**
Comparison between hippocampal CA1 pyramidal neurons from mice and rats
Paola Vitale | Italian National Research Council
- **Poster Number 57:**
Allosteric modulation of nicotinic Acetylcholine Receptor $\alpha 7$ studied by Molecular Dynamics
Mariia Avstrikova | Institut Pasteur
- **Poster Number 59:**
Cortical reorganization in patients with deafferentation pain after brachial plexus avulsion or amputation
Hanna Koehler | Jena University Hospital
- **Poster Number 61:**
Longitudinal functional connectivity changes in individuals at risk of Alzheimer's disease
Alejandra García-Colomo | Universidad Complutense de Madrid
- **Poster Number 63:**
Positive schizotypy predicts increased susceptibility to the Müller-Lyer visual illusion
Orsolya Lanyi | Semmelweis University
- **Poster Number 65:**
Emergent Self-Coordination in Simulated Swarms steered by Spiking Neural Networks
Alper Yegenoglu | Forschungszentrum Jülich
- **Poster Number 67:**
Mechanisms Of Cerebral Processing Of Complex Acoustic Signals
Katharina Griebel | Jena University Hospital

LIST OF POSTERS - POSTER SESSION I

- Poster Number 69:
Leveraging PyTorch on BrainScaleS-2: Training a Real-World Application
[Elias Arnold](#) | [Heidelberg University](#)
- Poster Number 71:
Optimising Spike Throughput and Latency on Spike Event Accumulation for Packet-Based Interconnection Networks
[Tobias Thommes](#) | [Heidelberg University](#)
- Poster Number 73:
Resting-state EEG functional connectivity in schizophrenia
[Melinda Becske](#) | [Semmelweis University](#)
- Poster Number 75:
Modelling amyotrophic lateral sclerosis in vitro by direct cell reprogramming approaches
[V́ctor ́lvaro-Śnchez](#) | [Cajal Institute](#)
- Poster Number 77:
Network dynamics of the human cerebral cortex in vitro
[Rita M Robles](#) | [August Pi i Sunyer Biomedical Research Institute](#)
- Poster Number 79:
Soft matter compilers for memristive neuromorphic hardware
[Davin Browner](#) | [Royal College of Art](#)

BOOK OF ABSTRACTS:



https://www.dropbox.com/sh/0mwahuaih3830yz/AAC5hp_-F121nlZgaHuwfiQa?dl=0



LIST OF POSTERS
POSTER SESSION II

LIST OF POSTERS - POSTER SESSION II

- **Poster Number 2:**
Role of PUF-Based Post-transcriptional Regulation in Learning and Memory
Spatika Jayaram | University of Oxford
- **Poster Number 10:**
Rigid theta sequences in the hippocampal CA3 area shape phase precession directionality in 2-D space
Yuk Hoi Yiu | Bernstein Center Freiburg, Albert-Ludwigs-Universität Freiburg
- **Poster Number 12:**
RNA sequencing analyses in bipolar families with multiple affected individuals
Inés García-Ortiz | Centro Biología Molecular Severo Ochoa
- **Poster Number 14:**
Machine Learning For Predicting Individual Disease Progression In Early Stage Of Cognitive Deficits
Anna Schweinar | Jena University Hospital
- **Poster Number 16:**
The role of the ipsilateral cerebral cortex for functional recovery after stroke
Alexander Noll | Jena University Hospital
- **Poster Number 18:**
Analysis of hippocampal participation in social interactions in a genetic model of autism spectrum disorder
Pilar Rodriguez-Martin | Cajal Institute
- **Poster Number 20:**
Relation between functional and structural brain networks using Magnetoencephalography (MEG) and Tensor Diffusion Images (DTI): a preliminary study
Maria Sevilla García | Center for Cognitive and Computational Neuroscience
- **Poster Number 22:**
Analyses of DMRT gene family susceptibility across psychiatric disorders
Jose Ignacio Gomez-Blanco | Centro de Biología Molecular Severo Ochoa

LIST OF POSTERS - POSTER SESSION II

- Poster Number 24:
A computational model of early altered excitability in CA1 pyramidal neurons of the ventral hippocampus in Tg2576 AD mouse
[Elisabetta Giacalone](#) | [Italian National Research Council](#)
- Poster Number 26:
Electroconvulsive therapy changes functional brain connectivity and TNF-alfa blood levels in depressed patients
[Nadia Falhani](#) | [University of Regensburg](#)
- Poster Number 28:
Altered functional organization of iPSCs-derived Neuronal Networks in Major Depressive Disorder
[Rahaf Issa](#) | [University of Regensburg](#)
- Poster Number 30:
Effects of Acute Stress and Epinephrine Administration on Memory Impairment and Anxiety Behavior
[Zehra Sezgin](#) | [Zonguldak Bulent Ecevit University](#)
- Poster Number 32:
Transdiagnostic EEG Microstate Analysis in Schizophrenia and Autism Spectrum Disorder – Can Microstate Parameters Aid the Differential Diagnosis of the Two Dysconnectivity Disorders?
[Ágota Vass](#) | [Simmelweis University](#)
- Poster Number 34:
Development of biohybrid silk fibroin scaffolds for application in regenerative medicine of the peripheral nervous system
[Ana María Quintana Prego, Sofia Martinez](#) | [Centro de Tecnología Biomédica](#)
- Poster Number 36:
Influence of tACS on dynamic functional connectivity in healthy controls - A pilot study (tACS)
[Martín Carrasco Gómez](#) | [Universidad Politécnica de Madrid](#)

LIST OF POSTERS - POSTER SESSION II

- Poster Number 38:
Towards a fully automatic method for dendritic spine segmentation
Isabel Vidaurre-Gallart | [Universidad Rey Juan Carlos](#)
- Poster Number 40:
A novel computational platform to simulate the oxygen-dependent firing behaviour of biological neural networks
Rachele Fabbri | [University of Pisa](#)
- Poster Number 42:
Brain Signal Analysis for Inner Speech detection
Valeria Buenrostro-Leiter | [Luleå University of Technology](#)
- Poster Number 44:
Computational modelling for non-invasive monitoring of intracranial pressure
Fariba Karimi | [IT'IS Foundation, ETH Zurich](#)
- Poster Number 46:
Structural insights into the functional amyloid hCPEB3 from single-molecule studies
Ada Bernaus Vives | [Instituto de Neurociencias Ramón y Cajal](#)
- Poster Number 48:
Rest in Binge: An exploration of the effects of alcohol consumption on functional connectivity during adolescent neurodevelopment
Alberto del Cerro León | [Universidad Complutense de Madrid](#)
- Poster Number 52:
Differential patterns of transient high power oscillatory events in resting MEG in Alzheimer's Disease converters
Danylyna Shpakivska-Bilan | [Complutense University of Madrid](#)
- Poster Number 54:
Generating High Performance Simulations from a Portable Data Format using Arbor
Lennart Landsmeer | [Forschungszentrum Jülich](#)

LIST OF POSTERS - POSTER SESSION II

- Poster Number 56:
Application of Working Memory Adapted Navigation for Human Robot Interaction in an Industrial Context
Alice Nardelli | Istituto Italiano di Tecnologia
- Poster Number 58:
Deciphering the role of miR-148a in the brain development
Rocío Bartolomé-Cabrero | Instituto de Investigaciones Biomédicas "Alberto Sols"
- Poster Number 60:
The Scientific Liaison Unit of EBRAINS from science to infrastructure
Marissa Diaz | Forschungszentrum Jülich
- Poster Number 62:
Estimation of microscale connectivity from spiking activity of macaque visuomotor cortices
Aitor Morales-Gregorio | Forschungszentrum Jülich
- Poster Number 64:
Early magnetoencephalography power alterations in individuals at risk for Alzheimer's disease during the retrieval phase of a working memory task with faces
Martín Carrasco Gómez | Universidad Politécnica de Madrid
- Poster Number 66:
Biomorphic Control for High-Speed Robotic Applications
Yannik Stradmann | Heidelberg University
- Poster Number 68:
Towards Meta-Learning on BrainScaleS-2
Philipp Spilger | Heidelberg University

LIST OF POSTERS - POSTER SESSION II

- Poster Number 72:
Usually, I don't ruminate, only from time to time: the predictive value of trait and state measures of rumination for the intensity of affective states
Flóra Hann | Budapest University of Technology and Economics
- Poster Number 76:
Integrating axonal morphologies to a somatosensory thalamocortical circuit model for generating rhythmic oscillations
Renan Oliveira Shimoura | Forschungszentrum Jülich
- Poster Number 78:
NEST Desktop 3.2 - a front end moves towards young researchers.
Jens Bruchertseifer | Universität Trier
- Poster Number 80:
Brain bases of attitude and preference change motivated by cognitive dissonance: a scoping review
Estrella Veiga Zarza | Universidad Autonoma de Madrid

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