2018
OHBM
SINGAPORE
June 17 - 21, 2018
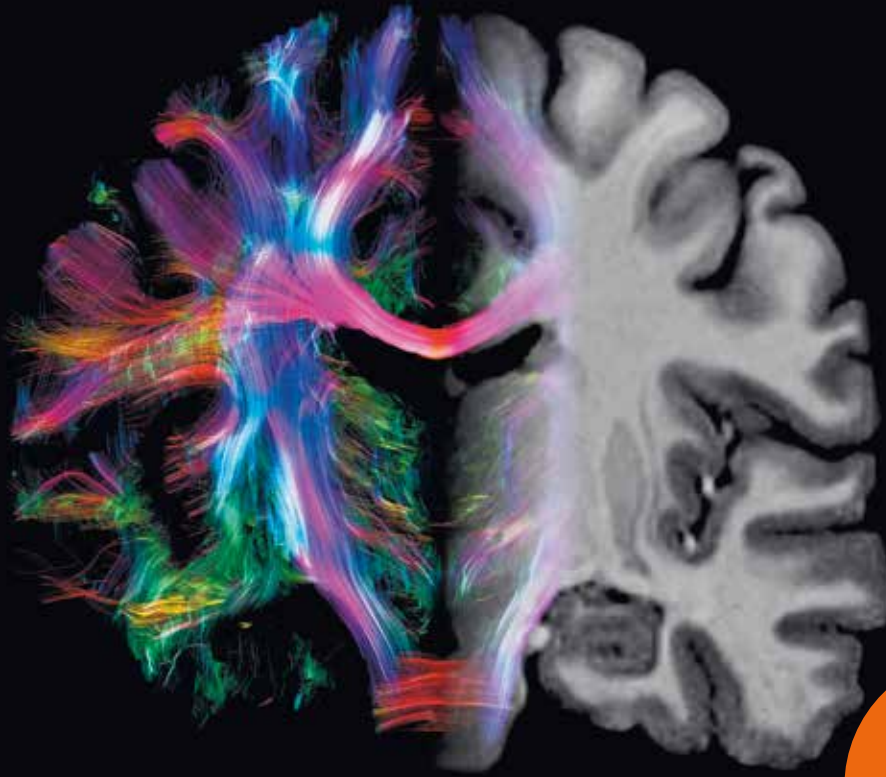
24TH ANNUAL MEETING OF THE
ORGANIZATION FOR HUMAN BRAIN MAPPING

PROGRAM

June 17-21, 2018

SUNTEC CONVENTION AND EXHIBITION CENTRE | SINGAPORE

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WELCOME

Welcome to Singapore! The OHBM Annual Meeting is where the neuroimaging community comes together as the leaders, future luminaries and students to share groundbreaking research along with our ideas, insights and experiences with one another.

Whether this is your first OHBM Annual Meeting or your twentieth, we know you'll enjoy the amazing lineup of speakers and presenters that have been assembled for the 2018 event. As always, the poster presentations and oral sessions provide the opportunity to learn about the latest and most cutting-edge research. We hope you enjoy the meeting and leave feeling inspired and excited to continue leading the field of neuroimaging into the future. Here is just a sampling of what you can expect:

- Talairach Lecturer Professor Karl J. Friston MB, BS, MA, MRCPsych, FMedSci, FRSB, FRS Wellcome Principal Fellow & Scientific Director: Wellcome Trust Centre for Neuroimaging, United Kingdom will present *"I am therefore I think."*

- Keynote lecturers including Gustavo Deco, Barcelona; Simon Eickhoff Jülich/Düsseldorf; Beatriz Luna, Pittsburgh; Daniel Margulies, Paris; Leah Somerville, Harvard University; Irene Tracey, Oxford; and Martijn van den Heuvel, Utrecht offering a diversity of topics discussing major themes in neuroimaging science and applications.

- Stimulating morning and afternoon symposia that will spur active audience discussion and participation.

- The popular Local Organizing Committee Symposium on Monday from 10:50 to 12:00H covering *"Mapping Brain Connectivity to Behavior In Young and Old: Methods, Illustrations and Challenges"* will discuss how human brain connectivity has opened new vistas for methodological development and characterisation of brain function, as well as how these advances can result in a better understanding of human behavior and clinical outcomes.

- Interactive roundtable discussions on two important topics: 1) an overview of publishing trends with opportunities to hold open discussion with key journal editors on Monday starting at 12:00H; and 2) interactive mentoring roundtable hosted by the Student/Post Doc Special Interest Group on Tuesday at 12:00H.

- Social and Networking opportunities with our exhibitors, sponsors, mentors and peers including the Student/Post Doc Special Interest Group social on Monday evening, Tuesday's legendary Club Night, and Tuesday and Thursday poster receptions.

- Hackathon activities hosted by the OHBM Open Science Special Interest Group with programming offered throughout the meeting.

We would like to thank each of you for attending the OHBM meeting and bringing your expertise to our gathering. We look forward seeing you in Singapore for what promises to be a most stimulating and enjoyable event.

Sincerely,

Bernard Mazoyer,
Chair, Council

Guillén Fernández,
Chair, Program Committee

Michael Chee
Chair, Local Organizing Committee

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OHBM 2018 PROGRAM-AT-A-GLANCE

Sunday, June 17

Educational Courses

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Hall 405-406

Hands on reproducible brain imaging
Room: 331

Pattern Recognition for NeuroImaging
Room: 334-336

EEG and MEG Source Reconstruction with FieldTrip
Room: 303-304

Morning Courses 8:00 – 12:00
Time-varying connectivity in resting-state fMRI: from methods to interpretations
Room: 332

Why it all comes back to Anatomy
Room: 308

Introduction to Imaging Genetics
Room: 309

Reusing Public Neuroimaging Datasets
Room: 310

Afternoon Courses 13:00 – 16:30
Beyond Linear Decoding: An Introduction to Deep Learning Methods
Room: 308

Neuroimaging Meta-Analysis
Room: 309

Brain parcellations and functional territories
Room: 332

Population neuroscience: How to responsibly handle big data in the age of biobanks
Room: 310

12:00 – 13:00 Lunch

Open Science
12:00 – 13:00
Brainhack 101
Room: 311

16:30 – 17:15
Openscience SIG Meeting
Room: 311

17:30 – 19:30
Opening Ceremonies and Talairach Lecture
Hall 405-406

Talairach Lecture: Karl J. Friston MB, BS, MA, MRCPsych, FMedSci, FRSB, FRS
I am therefore I think

19:30 – 21:00
Welcome Reception
Level 3

Monday, June 18

8:00 – 9:15
Morning Symposia
Cognitive & Affective Neuroscience: From Circuitry to Network and Behavior
Room: Summit 2

What can functional connectivity tell us about mechanisms of brain function?
Room: 324-326

Brodmann (1868-1918): A pioneer of human brain mapping and his impact on present and future concepts
Hall 405-406

Population & imaging genetics approaches: what can brain imaging contribute
Room: Summit 1

15 minute break

9:30 – 10:15
Keynote Lecturer: Irene Tracey
Imaging Pain, Relief and Anaesthesia-induced altered states of Perception
Hall 405-406

10 minute break

10:25 – 10:50
Best Paper Award Presentations
Hall 405-406

10:30 – 12:00
Open Science
OHBM Hackathon projects 2018
Room: 311

10:50 – 12:00
LOC Symposium
Mapping Brain Functional Connectivity to Behavior In Young and Old: Methods, Illustrations and Challenges
Hall 405-406

12:00 – 13:00 Lunch

12:00 – 13:00
The OHBM Publishing Initiative Roundtable
Room: 324-326

12:30 – 14:30
Open Science
Anatomical imaging & pattern classification
Room: 311

13:15 – 14:30
Multi Modality Sympsoium
Hall 405-406

15 minute break

14:45 – 16:00
Oral Sessions
Modeling & Analysis Methods I / *Hall 405-406*
Disorders of the Nervous System – Neurology / *Room: Summit 1*
Neuroanatomy & Physiology / *Room: 324-326*
Decision Making / *Room: Summit 2*

15 minute break

16:15 – 17:00
Keynote Lecture: Simon Eickhoff
Bridging the gap: From large-scale aggregation to individual prediction
Hall 405-406

15 minute break

17:15 – 18:15
Up Close and Personal with Susan Bookheimer
Room: 324-326

20:00
Student/Post Doc Monday Night Social
Where: Altimate and 1-Altitude, 1 Raffles Place, Singapore 048616

Tuesday, June 19

7:00 – 8:00
Morning Coffee with Exhibitors

8:00 – 9:15
Morning Symposia
Dynamics of resting-state functional connectivity: Methods and models
Room: Summit 1

Prediction bias in perceptual experience and decision making
Hall 405-406

Neuroplasticity: From bench to practice
Room: Summit 2

Data science in neuroscience: Generating insight from rich, complex and messy data
Room: 324-326

15 minute break

9:30 – 10:15
Keynote Lecturer: Prof. Dr. Gustavo Deco
Towards Causal Neuroimaging: Whole-Brain Dynamics and Modelling
Hall 405-406

15 minute break

10:30 – 11:45
Oral Sessions
Imaging methods – Aquisition 1 / *Hall 405-406*
Informatics / *Room: 324-326*
Lifespan Development / *Room: Summit 2*
Brain Stimulation Methods / *Room: Summit 1*

11:45 – 12:45 Lunch

12:00 – 13:30
Student/Postdoc SIG Roundtable
Lunch with Mentors / *Room: Summit 1*

12:00 – 14:30
Lunch Symposium – PHILIPS NEURO DIAGNOSTICS
Room: 324-326

12:30 – 14:30
Open Science
Functional imaging / *Room: 311*

12:45 – 14:45
All Posters #1000-2962
Authors with even number posters will present from 12:45 – 13:45. Authors with odd number posters will present 13:45 – 14:45.
Hall 401-403

14:45 – 16:00
Afternoon Symposia
Critical Perspectives on Time-Varying Models for BOLD Functional Connectivity
Hall 405-406

Movies in the Magnet: Emerging themes from naturalistic viewing studies in fMRI
Room: Summit 2

Transcranial Low Intensity Focused Ultrasound: A novel approach to non-invasive brain mapping
Room: Summit 1

Evolving perspectives on neurohormonal modulation of social-emotional networks
Room: 324-326

15 minute break

16:15 – 17:00
Keynote Lecture: Beatriz Luna, Ph.D.
Uncovering neurodevelopmental specialization of neurocognitive processes using multimodal neuroimaging
Hall 405-406

17:00 – 19:00
Chinese Young Scholar Meeting / *Room: 324-326*

20:00 – 2:00
Club Night / *Zouk*

Wednesday, June 20

7:00 – 8:00
Morning Coffee with Exhibitors

8:00 – 9:15
Morning Symposia
Evolving perspectives on integrating task-based and rest-based models of brain function
Hall 405-406

Progression from the mean: neuroimaging methods for modeling population variability & heterogeneity
Room: Summit 1

Multimodal imaging of electroconvulsive therapy at the human system level
Room: Summit 2

15 minute break

9:30 – 10:15
Keynote Lecture: Leah Somerville, PhD
Neurodevelopment, self-regulation, and value
Hall 405-406

15 minute break

10:30 – 11:45
Oral Sessions
Modeling & Analysis Methods II / *Hall 405-406*
Disorders of the Nervous System – Psychiatry / *Room: Summit 1*
Language / *Room: 324-325*
Learning and Memory / *Room: Summit 2*

11:45 – 12:45 Lunch

12:00 – 13:30
Siemens Healthineers Lunch Symposium
Room: 324-326

12:30 – 14:30
Open Science
Diffusion methods
Room: 311

12:45 – 14:45
All Posters #1000-2962
Authors with even number posters will present from 12:45 – 13:45.
Authors with odd number posters will present 13:45 – 14:45.
Hall 401-403

13:00-14:30
Coffee & Dessert with Exhibitors
Hall 401-403

14:45 – 16:00
Afternoon Symposia
Reproducibility in functional MRI: validation, improvement and future
Hall 405-406

Neurobiology of Exercise: What Neuroimaging tells us about the underlying Molecular Mechanisms
Room: 324-325

Novel multimodal approaches for precision brain stimulation
Room: Summit 2

Modelling complex neuroimaging data: Practical approaches to longitudinal and dependent data
Room: Summit 1

15 minute break

16:15 – 17:00
Keynote Lecture: Daniel S. Margulies, PhD
Topographic principles of macroscale cortical connectivity
Hall 405-406

15 minute break

17:15 – 18:15
General Assembly & Feedback Forum
Hall 405-406

Thursday, June 21

7:00 – 8:00
Morning Coffee with Exhibitors

8:00 – 9:15
Morning Symposia
A spotlight on network hubs: cutting-edge analyses and clinical applications
Hall 405-406

Good Noise in Neural Computation
Room: Summit 1

Mapping and Manipulating Neural Oscillations with Non-Invasive Brain Stimulation
Room: Summit 2

15 minute break

9:30 – 10:15
Keynote Lecture: Martijn van den Heuvel, PhD
Principles of wiring of the human connectome
Hall 405-406

15 minute break

10:30 – 11:45
Oral Sessions
Imaging Methods 2 / *Hall 405-406*
Genetics / *Room: Summit 1*
Mapping Emotions & Social Function in the Brain / *Room: 324-325*
Perception, Attention, & Motor Behavior / *Room: Summit 2*

11:45 – 12:45 Lunch

12:30 – 14:30
Open Science
Machine learning and clustering
Room: 311

12:45 – 14:45
All Posters #1000-2962
Authors with even number posters will present from 12:45 – 13:45.
Authors with odd number posters will present 13:45 – 14:45.
Hall 401-403

14:45 – 16:00
Closing Comments and Meeting Highlights
Hall 405-406

16:00 –17:30
Farewell Poster Reception
All Posters #1000-2962
Hall 401-403

GENERAL INFORMATION

CONFERENCE VENUE

Suntec Singapore International Convention
and Exhibition Centre
1 Raffles Boulevard
Suntec City, Singapore 039593

**All events will take place at the convention centre
unless otherwise noted.**

REGISTRATION HOURS

Level 3

Saturday, June 16: 15:00 – 18:00
Sunday, June 17: 7:00 – 19:30
Monday, June 18: 7:30 – 17:00
Tuesday, June 19: 7:30 – 15:00
Wednesday, June 20: 7:30 – 15:00
Thursday, June 21: 7:30 – 15:00

EXHIBIT HOURS

Hall 401-403

Tuesday, June 19: 7:00 – 8:00; 11:30 – 16:00
Wednesday, June 20: 7:00 – 8:00; 11:30 – 16:00
Thursday, June 21: 7:00 – 8:00; 11:30 – 17:30

ABSTRACT / POSTER LISTING BOOK

You can locate the abstract / poster listing book only on our
website. Posters are searchable by author and category in the
mobile app. (**www.humanbrainmapping.org/2018abstracts**)

SPEAKER READY ROOM

Room: 323

Saturday, June 16: 15:00 – 18:00
Sunday, June 17: 7:00 – 19:00
Monday. June 18: 7:00 – 19:05
Tuesday, June 19: 7:00 – 18:00
Wednesday, June 20: 7:00 – 18:00
Thursday, June 21: 7:00 – 16:00

INTERNET CAFÉ / CHARGING STATION

Level 3

A limited number of complimentary terminals and power outlets
will be available. Please limit your time at a terminal to 15 minutes.

Saturday, June 16: 15:00 – 18:00
Sunday, June 17: 7:00 – 19:30
Monday. June 18: 7:30 – 17:00
Tuesday, June 19: 7:30 – 17:00
Wednesday, June 20: 7:30 – 17:00
Thursday, June 21: 7:30 – 15:00

MOBILE APP

The 2018 Mobile App, powered by EventLink and created by
Core-Apps LLC, is a native application for smartphones (iPhone
and Android), a hybrid web-based app for Blackberry, and there's
also a web-based version of the application for all other web
browser-enabled phones.

How to Download:
For iPhone (plus, iPod Touch & iPad) and Android phones: Visit
your App Store or Android Market on your phone and search
for OHBM. Click on the OHBM logo/ OHBM Annual Meetings then
select the 2018 Annual Meeting.

For All Other Phone Types (including BlackBerry and all other
web browser-enabled phones): While on your smartphone, point
your mobile browser to **http://m.core-apps.com/ohbm2018**. From
there you will be directed to download the proper version of the
app for your particular device, or, on some phones, you simply
bookmark the page for future reference.

OHBM ART EXHIBIT

Hall 401-403 Foyer

Monday, June 18: 7:30 – 17:00
Tuesday, June 19: 7:30 – 15:00
Wednesday, June 20: 7:30 – 15:00
Thursday, June 21: 7:30 – 15:00

Organizer: Shubigi Rao

Currently in its eighth year, the Brain-Art Exhibition aims to provide
an active interface between neuroscience and the arts at annual
meeting of OHBM.

Artist and writer Shubigi Rao makes layered installations of books,
etchings, drawings, pseudo-scientific machines, metaphysical
puzzles and video. Her interests include archaeology and
neuroscience, libraries and archival systems, histories and lies,
literature and violence, ecologies and natural history. She is
currently visiting public and private libraries and archives globally
for *'Pulp: A Short Biography of the Banished Book'*, a decade-long
film, book, and art project about the history of book destruction.

OHBM ONDEMAND

OHBM OnDemand is an online portal designed to provide you
with access to educational resources dedicated to those using
neuroimaging to discover the organization of the human brain.
Access videos, audio and PPT presentations from the quality
scientific educational offerings during this year's meeting (as
well as from the 2013-2017 OHBM Annual Meetings). OHBM
OnDemand is provided at no charge to those that attended
the meeting. 2018 Annual Meeting materials will be posted
within three weeks after the conclusion of the meeting. An
announcement will be sent to all attendees announcing
its availability.

ONSITE CAREER RESOURCES

Back by popular demand! OHBM has created an electronic board at **www.humanbrainmapping.org/2018Career** where PIs can post positions available notices (under "Job Openings") and individuals can post CVs (under "People Looking for Jobs") before and during the meeting. We recommend using the main lobby and foyer areas to meet with prospective employers or employees.

SOCIAL MEDIA

Twitter: @OHBM, hash tag **#OHBM2018**
Facebook: **facebook.com/humanbrainmapping.org**
Facebook Student Post Doc:
facebook.com/OHBMStudentandPostdocSection
LinkedIn: **linkedin.com/company/organization-for-human-brain-mapping/**

E-POSTERS

All poster presenters are encouraged to upload an electronic version of their poster (E-poster) as a pdf. To access E-Posters, please go to **https://ww5.aievolution.com/hbm1801/**

WIRELESS CONNECTION

Wireless connections will be available throughout the Suntec Singapore International Convention Centre.
Connect to: **OHBM_2018**
No password is required.

EVALUATIONS

Rate sessions you attend in the OHBM app by selecting the clipboard icon on the left menu of an event. Your feedback ensures that we can continue to improve the content, format, and schedule of the meeting. Please rate the sessions and complete the quick survey.

AUDIENCE RESPONSE SYSTEM Q&A

Available in a limited number of sessions. Visit **https://gmp3.cnf.io/**

ACCME ACCREDITATION

CME CREDIT: This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through sponsorship of the Organization for Human Brain Mapping. The OHBM is accredited by the ACCME to provide continuing medical education for physicians.

The Organization for Human Brain Mapping designates this educational activity for a maximum of 29.50 PRA Category 1 Credit(s)™. Physicians should only claim credit commensurate with the extent of their participation in the activity. **CME forms will only be available onsite or online on the OHBM website.**

EDUCATIONAL COURSES	CREDITS
Full Day Educational Courses 8:00 – 14:30	7.00 each
Morning Educational Courses 8:00 – 12:00	3.50 each
Afternoon Educational Courses 13:00 – 14:30	3.50 each

Maximum number of possible credits earned at Educational Courses 7.00

ANNUAL MEETING CREDITS

Talairach Lecture	0.75
Keynote Lectures	0.75 each
Symposia	1.25 each
Oral Sessions	1.25 each
LOC Symposium	1.25
Meeting Highlights	1.00
General Assembly and Feedback Forum	0.50

Total number of possible credits earned at Annual Meeting 22.50

TOTAL NUMBER OF POSSIBLE CREDITS 29.50

ADDITIONAL ACTIVITIES DURING ANNUAL MEETING

2018 OHBM OPEN SCIENCE SPECIAL INTEREST GROUP HACKATHON – BRAINHACK & TRAINTRACK
Room: 311
Open daily June 17-21 from 8:00 – 19:00

The 2018 OHBM Open Science Special Interest Group BrainHack & TrainTrack took place June 14-16 at the National University of Singapore U-Town Campus. The goal of the BrainHack was to bring together researchers with diverse backgrounds from the OHBM community to collaborate on open science projects in neuroimaging. In parallel, the TrainTrack hosted short tutorials on data science and neuroimaging tools and best practices. The spirit of the BrainHack/TrainTrack will also be continuing into the OHBM meeting at the Suntec Singapore from June 17-21, where a collaboration space (Room 311) will be available in the conference venue. This space will be open to all OHBM attendees to discuss, present, and continue working on BrainHack projects and discussing TrainTrack tutorials. The BrainHack/TrainTrack was made possible by the generous support of MCIN (McGill Centre for Integrative Neuroscience), The Ludmer Center. The Mozilla Foundation, INCF (International Neuroinformatics Coordinating Facility) and the Organization for Human Brain Mapping.

Organizers
Anisha Keshavan, Gregory Kiar, Valeria Kebets, Csaba Orban, Anqi Qiu, Thomas Yeo, Chris Gorgolewski, Jean-Baptiste Poline

2018 OHBM OPEN SCIENCE SPECIAL INTEREST GROUP – OPEN SCIENCE ROOM
Open daily June 17-21 from 8:00 – 19:00
Room: 311
Organizer: *Felix Hoffstaedter, Institute of Neuroscience and Medicine (INM-7: Brain and Behaviour), Research Centre Jülich, Germany*
The Open Science SIG has organized the "Open Science Room" (Room 311) that will be available through the meeting to all OHBM attendees to discuss, present, learn, and collaborate in the spirit of Open Science. Over the lunch breaks are scheduled a series of software focused presentations by developers of current neuroimaging analysis packages to provide an overview on the newest software releases and latest developments. All attendees are welcome to stay beyond the 15-20 minute demonstrations to ask questions and work with each other to improve their understanding of these tools. You are invited to come by at any time to learn more about open science, how you can get involved, or to use the space to interact with your colleagues. See below, or check the mobile app, for the scheduled demonstrations, and visit **https://github.com/ohbm/OpenScienceRoom2018** to stay updated on all the community lead initiatives.

BRAINHACK 101
Sunday, June 17, 12:00 – 13:00

OPENSCIENCE SIG MEETING
Sunday, June 17, 16:30 – 17:15

OHBM HACKATHON PROJECTS 2018
Monday, June 18, 10:30 – 12:00

ANATOMICAL IMAGING & PATTERN CLASSIFICATION
Monday, June 18, 12:30 – 14:30
- Brain Intensity AbNormality Classification Algorithm (BIANCA), Ludovica Griffanti
- Computational Anatomy Toolbox (CAT12), Christian Gaser
- Pattern Recognition for Neuroimaging Toolbox (PRoNTo), Janaina Mourao-Miranda

FUNCTIONAL IMAGING
Tuesday, June 19, 12:30 – 14:30
- Group ICA Of fMRI Toolbox (GIFT) & Fusion ICA Toolbox (FIT), Vince Calhoun
- fMRIprep, A Robust Preprocessing Pipeline for fMRI Data, Chris Gorgolewski
- FSLnets network modelling, Eugene Duff

DIFFUSION METHODS
Wednesday, June 20, 12:30 – 14:30
- MRtrix, Advanced tools for the analysis of diffusion MRI data, Peter McColgan
- Microstructure Diffusion Toolbox (MDT), Alard Roebroeck

MACHINE LEARNING & CLUSTERING
Thursday, June 21, 12:30 – 14:30
- Instantaneous Connectivity Parcellation (ICP) & Connectivity Gradients CONGRADS, Christian Beckmann
- NeuroData's MRI Graphs pipeline (NDMG), Eric Bridgeford
- A Python-based Hyperparameter Optimization Toolbox for Neural Networks PHOTON & PAC 2018 Winners announcement, Tim Hahn

WELCOME RECEPTION

Sunday, June 17, 19:00 – 21:00
Level 3

Join us for the 2018 Annual Meeting Welcome Reception. The reception will be on the 3rd level of the convention centre immediately following the Opening Ceremonies and Talairach Lecture on Sunday, June 17th. The Welcome Reception will include local entertainment, local quezine, beer and wine. **Please make sure to wear your name badge, which will serve as your ticket to the event.** Additional guest badges are $50.00 USD.

INDUSTRY SPONSORED LUNCH SYMPOSIA

Tuesday, June 19
PHILIPS NEURO DIAGNOSITCS
12:00 – 14:30
Room: 324-326

Insights on Simultaneous HD EEG, MRI and Transcranial Electrical Neuromodulation
Dr. Peter Molfese, NIH Section on Functional Imaging Methods

An EEG Study on Attentional Selection and Suppression in Children with Attention-Deficit/Hyperactivity Disorder
Dr. Yan Song, Beijing Normal University

Buffet lunch available to the first 150 people.

Wednesday, June 20
SIEMENS HEALTHINEERS
Room: 324-326

Constantly exceeding the possible. Pioneering MRI.

Boxed lunch available to the first 250 people.

New This Year!
SOFTWARE DEMONSTRATIONS
Hall 401-403
Tuesday, Wednesday, Thursday - 12:45-14:45

HEALTHY BRAIN ACTIVITIES

Pre-registration required:
Visit **www.humanbrainmapping.org/healthybrain2018**

Morning Yoga
Monday and Tuesday, 7:00 – 7:45, Concourse 1

Southern Ridges Trail Hike
Monday and Tuesday, 17:15 – 20:00
Meet at Southern Ridges Trail Head. Harbour front MRT exit D.

CLUB NIGHT

Tuesday, June 19, 20:00 – 2:00
Zouk

Address: 3C River Valley Road, The Cannery, Singapore 179022

ZOUK is the most popular nightclub in Singapore that attracts not only local residents but also international travelers. Providing excellent clubbing experience to customers for more than 23 years, this award winning club has long been recognized as one of the best nightlife attractions in Singapore. Zouk in located in the Clark Quay neighborhood surrounded by a large variety of restaurants and bars to enjoy prior to or following Club Night. Zouk is located easily accessible by public transportation and is approximately 10 minutes from Suntec. The party is complimentary to registrants.

PLEASE NOTE: You must have your ticket or your name badge or you will not be admitted.

Additional guest tickets are $50.00 and must be purchased at the conference registration desk.

GENERAL ASSEMBLY & FEEDBACK FORUM

Wednesday, June 20, 17:15 – 18:15
Hall 405-406

The General Assembly & Feedback Forum is the top source for the latest breaking news and commentary on issues impacting the neuroimaging community and your member organization. It is also an opportunity for you to voice your opinions and questions to the Council — which helps shape future agendas. Member input will be sought on several topical issues including a report by the Chair on OHBM's recent strategic planning meeting and new initiatives under development and a report by the newly formed Communications Committee on ways members the OHBM community can remain engaged even after the meeting. The new elected leadership will be announced as well as dates and venues for future Annual Meetings. Use the ARS to submit your questions: Visit **https://gmp3.cnf.io/**

Network Neuroscience: Concepts, Methods and Applications

Full Day Course / 8:00 – 16:30
Hall 405-406
Organizers:
Alex Fornito, Monash University, Clayton, Australia

Andrew Zalesky, University of Melbourne, Melbourne, Australia

Recent large-scale efforts to map neuronal connectivity in diverse species, including the nematode worm, fruit fly, mouse, macaque and human, have led to an explosion of data acquired using a diverse array of measurements techniques, and at scales ranging from the level of single cells to large brain areas. In parallel, rapid advances in the physics of complex networks have led to a new understanding of the organization and dynamics of systems of interacting elements, with nervous systems being but one example. The confluence of these approaches lies at the heart of network neuroscience, which is concerned with understanding how nervous systems function as integrated systems. Critically, network neuroscience offers one of the few unified frameworks for representing different kinds of brain imaging data, acquired in different species at different scales and with different measurement techniques, by modelling all nervous systems in their most abstract form: as collections of nodes connected by edges.

This approach has already generated many novel insights into brain organization, showing for example that nervous systems across scales and species show a hierarchical, modular and small-world organization, that they contain highly connected hubs, and that they are economically wired. As the field matures, tools and techniques developed in other areas of network science are being increasingly refined and adapted to the neuroscience context.

As large-scale and high-quality data on brain connectivity become increasingly available, familiarity with the tools and techniques of network neuroscience is rapidly becoming an essential component of a neuroscientist's training. This workshop will provide a comprehensive introduction to both historical applications and cutting-edge techniques, covering topics that span both basic and advanced concepts in the area. It will address issues associated with measurement and modelling, statistical analysis and applications to key questions in neuroscience.

Course Schedule:

8:00 – 8:35
An introduction to network neuroscience
Alex Fornito, Monash University, Clayton, Australia

8:35 – 9:10
Network statistics and thresholding
Andrew Zalesky, University of Melbourne, Melbourne, Australia

9:10 – 9:45
Null models for networks
James Roberts, QIMR Berghofer Medical Research Institute, Herston, QLD, Australia

9:45 – 10:20
Models of communication in brain networks
Bratislav Misic, McGill University, Montreal, Canada

10:20 – 10:50
BREAK

10:50 – 11:25
Network infrastructure for integration: hubs and rich club
Martijn van den Heuvel, Center for Neurogenomics and Cognitive Research, Utrecht, Netherlands

11:25 – 12:00
Questions and Answers

12:00 – 13:00
LUNCH

13:00 – 13:35
Modules in structural and functional brain networks
Rick Betzel, University of Pennsylvania, Philadelphia, PA, United States

13:35 – 14:10
Introduction to network control: Concepts, methods, and applications to neuroscience
Emma Towlson, Northeastern University, Boston, MA, United States

14:10 – 14:50
Generalised Stochastic Blockmodels of Network Topology
Dragana Pavlovic, National University Singapore, Singapore

14:50 – 15:00
BREAK

15:00 – 15:35
Introduction to applied algebraic topology for the analysis of brain networks
Ann Sizemore, University of Pennsylvania, Philadelphia, PA, United States

15:35 – 16:10
Models of network dynamics
Joana Cabral, Pompeu Fabra University, Barcelona, Spain

16:10 – 16:30
Questions and Answers

Hands on reproducible brain imaging

Full Day Course / 8:00 – 16:30
Room: 331
Organizers:

Jean-Baptiste Poline, McGill University, Montréal, Quebec, Canada, and University of California at Berkeley, Berkeley, CA, United States

David Keator, University of California, Irvine, Irvine, CA, United States

David Kennedy, University of Massachusetts, Boston, MA, United States

Nina Preuss, TCG, Inc., Washington, DC, United States

Important reproducibility issues in life sciences and biomedical research call for a specific hands on training. This course will be limited to about 35 participants so that personalized help can be provided. Participant will be learning how to do a reproducible neuroimaging analysis starting from the DICOM files up to the statistical results. Sessions will be composed with both short lectures and hands on exercises or quizzes. Participants will be reached out and asked to install some software on their laptops before the course. Registration can be found here:
https://www.eventbrite.com/e/hands-on-reproducible-brain-imaging-tickets-45694742204

Course Schedule:

8:00 – 8:30
Introduction to reproducible neuroimaging: motivations
David Kennedy, University of Massachusetts, Boston, MA, United States

8:30 – 10:00
FAIR Data – BIDS datasets
Maryann Martone and Jeffrey Grethe, UCSD, San Diego, CA, United States

10:00 – 10:15
BREAK

10:15 – 11:45
Computational basis
Yaroslav Halchenko, Dartmouth College, Hanover, NH, United States and Michael Hanke, Otto-von-Guericke-University, Magdeburg, Germany

12:00 – 13:00
LUNCH

13:00 – 14:30
Neuroimaging Workflows
Dorota Jarecka and Satrajit Ghosh, MIT, Boston, MA, United States, and Camille Maumet, INRIA, Rennes, France

14:30 – 14:45
BREAK

14:45 – 16:00
Statistics for reproducibility
Celia Greenwood, McGill University, Montréal, Quebec, Canada and Jean-Baptiste Poline, McGill University, Montréal, Quebec, Canada

16:00 – 16:30
Conclusion & Feedback
Nina Preuss, TCG, Inc., Washington, DC, United States

Pattern Recognition for NeuroImaging

Full Day Course / 8:00 – 16:30
Room: 334-336
Organizers:
Christophe Phillips, University of Liège, Liège, Belgium

Janaina Mourao-Miranda, University College London, London, United Kingdom

The application of pattern recognition techniques to neuroimaging data has increased substantially in the last years leading to a large body of publications. Pattern recognition approaches consist of a whole family of tools coming from the "machine learning" community (at the border of statistics and engineering), which have been adapted to investigate neuroscience questions. Depending on the research question asked, experimental design and data modality, it is important that the experimenter knows which tools to use and how to draw reliable conclusions. The course will focus on subject and/or patient classification (for cognitive and clinical applications) but also on regression issues. The usual functional and structural MRI modalities will be covered but the presentations will also consider other types of data. Model validation and statistical inference are particularly crucial as these notions somewhat differ from the standard univariate statistics usually applied to analyze neuroimaging data (e.g. General Linear Model) and should thus be specifically addressed. After introducing the theoretical foundations of pattern recognition in neuroimaging, a few talks will address key validation and inference issues. Then the remaining talks will introduce more advanced methodological points as illustrated by specific applications and/or modalities. At the end of the course, the neuroscientist should have a global understanding of pattern recognition approaches, how to apply these tools to his/her own data to address new questions, and how to interpret the outcomes of these analyses as well as how to draw reliable conclusions.

Course Schedule:

8:00 – 8:45
Pattern recognition in neuroimaging: fundamentals
Janaina Mourao-Miranda, University College London, London, United Kingdom

8:45 – 9:30
Cross-validation: what, which and how?
Pradeep Reddy Raamana, Baycrest Health Sciences, Toronto, ON, Canada

9:30 – 10:15
A primer on permutation testing (not only) for MVPA
Carsten Allefeld, Bernstein Center and Charité – Universitätsmedizin, Berlin, Berlin, Germany

10:15 – 10:35
BREAK

10:35 – 11:20
What can we say about weight maps from linear decoding models?
Jessica Schrouff, University College London, London, United Kingdom

11:20 – 12:05
What makes a good multivariate model for fMRI-based decoding ?
Bertrand Thirion, Parietal Team, INRIA/Neurospin Saclay, Saclay, France

12:05 – 13:00
LUNCH

13:00 – 13:45
Pattern recognition for clinical neuroimaging: questions, approaches, and validation
Ninon Burgos, Équipe Aramis, ICM, Paris, France

13:45 – 14:30
Learning and predicting with brain connectivity for clinical neuroscience
Jonas Richiardi, Lausanne University Hospital, Lausanne, Switzerland

14:30 – 14:50
BREAK

14:50 – 15:35
Supervised vs. unsupervised approaches in psychiatric neuroimaging
Valeria Kebets, National University of Singapore, Singapore

15:35 – 16:20
Deep learning approaches applied to neuro-imaging
Vince Calhoun, Mind/UNM, Albuquerque, NM, United States

16:20 – 16:30
Questions and Answers

EEG and MEG Source Reconstruction with FieldTrip

Full Day Course / 8:00 – 16:30
Room: 303-304
Organizers:
Maria Carla Piastra, Universiy of Münster, Münster, Germany

Simon Homölle, Donders Institute, Nijmegen, Netherlands

Robert Oostenveld, Radboud University, Nijmegen, Netherlands

Sophie Schrader, University of Münster, Münster, Germany

MEG and EEG channel data provides limited information about the specific cortical regions involved in electric and magnetic brain activities. Source reconstruction overcomes these limitations and gives more insight into cortical activity.

The easiest approach for source reconstruction is to use a spherical representation of the human head or a semirealistic template. There are scenarios in which this approximation leads to inaccurate and unreliable source reconstruction results.

We will therefore demonstrate an easy-to-use MATLAB analysis pipeline based on the FieldTrip toolbox to increase the accuracy of the source analysis by using individualized realistically shaped volume conductor head models using individual anatomical data and the finite element method (FEM).

This full-day educational course will give a comprehensive overview on the current state-of-the-art of MEG and EEG analysis and source reconstruction. During the workshop, the participants will work with a tutorial dataset and learn all important steps to preprocess data and accurately reconstruct cortical activity using the FEM and different inverse solutions.

Particular care will be taken to provide hands-on training to the audience on robust and state-of-the-art source reconstruction methods for both basic and advanced MEG/EEG study designs.

Course Schedule:
8:00 – 8:30
Welcome and getting started

8:30 – 9:20
Lecture: Preprocessing of MEG/EEG datasets and channel-level analysis
Sophie Schrader, University of Münster, Münster, Germany

9:20 – 10:40
Hands-On Session: Preprocessing of MEG/EEG datasets and channel-level analysis with the FieldTrip toolbox
Sophie Schrader, University of Münster, Münster, Germany

10:40 – 11:00
BREAK

11:00 – 12:00
Lecture: MEG/EEG forward modeling using realistically shaped finite element head models
Maria Carla Piastra, Universiy of Münster, Münster, Germany

12:00 – 13:00
LUNCH

13:00 – 14:00
Hands-On Session: MEG/EEG forward modeling using realistically shaped finite element head models with the FieldTrip toolbox
Maria Carla Piastra, Universiy of Münster, Münster, Germany

14:00 – 14:45
Lecture: Inverse solutions for the reconstruction of cortical activity recorded with MEG/EEG
Simon Homölle, Donders Institute, Nijmegen, Netherlands

14:45 – 15:00
BREAK

15:00 – 16:00
Hands-on Session: Inverse solutions for the reconstruction of cortical activity recorded with MEG/EEG using the FieldTrip toolbox
Simon Homölle, Donders Institute, Nijmegen, Netherlands

16:00 – 16:30
Questions and Answers

Time-varying connectivity in resting-state fMRI: from methods to interpretations

Half Day Morning Course / 8:00 – 12:00
Room: 332
Organizers:
Raphael Liegeois, National University of Singapore, Singapore

Vince Calhoun, Mind/UNM, Albuquerque, NM, United States

Recent converging evidence suggests that a static representation of FC, e.g. based on the correlation between entire fMRI time series, misses important information encoded in fMRI data. Hence, various methods have been developed in recent years to exploit the information encoded beyond such static measures. The researcher interested in exploring time-varying FC properties has to select among the multitude of proposed methods, each one having different properties and underlying assumptions. It is then also necessary to have a basic understanding of the processes generating the observed FC fluctuations in order to interpret the results. This educational course is aimed at guiding

the researcher through these two steps. To this end, we will first recall the definition of the most important mathematical terms needed to characterize temporal fluctuations of functional connectivity. This is of particular importance as some notions (e.g., '(non-)stationarity', 'static', 'dynamic', 'time-varying') may easily be misused, potentially leading to imprecise interpretations or confusion in the field. We will provide an overview of the main approaches that have been used to explore functional connectivity beyond the classical static paradigm (e.g. brain states, co-activation patterns, autoregressive models). We will also go into detail on methods that have shown the most promising results, using toy-examples and applications on real datasets. The second part of the course will be devoted to the interpretation of FC fluctuations. We will detail their links to micro-scale (i.e. neuronal) dynamics as well as their behavioral counterparts. We will conclude by summarizing the main remaining controversies of the field.

In order to maximize learning outcomes for participants, we will include two active learning components. First, online multiple-choice questions covering each talk will be proposed to the audience before the course. Answers to these questions will be provided at the end of each talk. In addition, an online question submission system will be made available to the audience in order for everyone to have the opportunity to comment on the talks and ask questions in advance or during the course.

The course website URL is:
https://raphaelliegeois.github.io/OHBM2018_TVFC_Course

Course Schedule:
8:00 – 8:35
Time-varying connectivity: introduction and terminology
Raphael Liegeois, National University of Singapore, Singapore

8:35 – 9:10
The Dynamic Functional Connectome: Methodological Framework
Maria Giulia Preti, Ecole Polytechnique Fédérale de Lausanne (EPFL) / Université de Genève, Genève, Switzerland

9:10 – 9:45
Time-varying connectivity: Data-driven approaches and clinical applications
Vince Calhoun, Mind/UNM, Albuquerque, NM, United States

9:45 – 10:00
BREAK

10:00 – 10:35
Neuronal models of dynamic functional connectivity: Linking scales and data modalities
Michael Breakspear, QIMR Berghofer, Brisbane, Australia

10:35 – 11:10

Cognitive and behavioral interpretations of time-varying changes in functional connectivity estimates

Jessica Cohen, University of North Carolina, Chapel Hill, NC, United States

11:10 – 11:45

What we talk about when we talk about 'dynamics' in resting state fMRI

Timothy Laumann, Washington University in St. Louis, St. Louis, MO, United States

11:45 – 12:00

Questions and Answers

Why it all comes back to Anatomy

Half Day Morning Course / 8:00 – 12:00
Room: 308
Organizers:
Svenja Caspers, Research Centre Jülich, Jülich, Germany

Katrin Amunts, Research Centre Jülich, Jülich, Germany

With modern neuroimaging providing more and more insights into the structure, function and connectivity of the brain on different levels using sophisticated computer algorithms, it remains and becomes even more important that basic anatomical principles and biological properties are the common denominator for integrating these different pieces of evidence. The talks of this course build on each other to provide different neuroanatomical viewpoints. Starting with what can be understood using sophisticated landmarks on the brain's surface, it will be shown where and how microstructural atlases come in handy and how the cortex is microstructurally organized. This links to modern neuroimaging approaches using ultra-high fields studying such features in-vivo as well as to the complex anatomy of the white matter with fiber tracts emanating from the axons which enter and leave the grey matter regions. The resulting tracts provide the structural connections for functional interactions between brain regions, mediated via neurotransmitters and their receptors as the molecular underpinning of resting-state connectivity. Exemplified on the language system, it will finally be shown how these different levels of anatomical knowledge can be integrated to gain a deeper understanding of peculiarities of structure-function relationships in the brain, such as interhemispheric differences, and how these relate to cognitive capabilities.

Course Schedule:
8:00 – 8:40

Being the anatomical wiseguy by knowing your landmarks and cables

Svenja Caspers, Research Centre Jülich, Jülich, Germany

2018 OHBM OpenScience Special InterestGroup "Brain Hacking 101" Workshop

12:00 –13:00
Room: 311
Organizer:
Greg Kiar, McGill Centre for Integrative Neuroscience, McGill University, Quebec, Canada

Over the past ten years, human brain imaging emerged as a computational field with an increasing demand for open source scientific tools that enable researchers to conduct rich analyses. In this hands-on workshop, the hackathon team, lead by Greg Kiar, will provide a gentle introduction to the tools which are prerequisites for a productive hackathon experience. (1) Social coding platforms (github) enable small or large teams of researchers to collaborate on developing code, and keep track of the history of all changes attached with a project. (2) Software containers (docker) are a simple yet powerful technology to package an entire computational environment, which can be shared and deployed easily. (3) Scientific notebooks (jupyter) are interactive documents that mix text, mathematics, code and the results of an analysis, available for all major scientific computing languages (Python, R, Matlab/Octave). Interested participants should come equipped with a laptop and docker installed **https://www.docker.com/**.

8:40 – 9:20

Where macroscopy fails: going to microscopic architecture

Katrin Amunts, Research Centre Jülich, Jülich, Germany

9:20 – 10:00

Finding the micro in the macro using ultra-high resolution MR imaging

Rainer Goebel, Maastricht University, Maastricht, Netherlands

10:00 – 10:15
BREAK

10:15 – 10:55

Anatomy in the resting state? Taking a look at receptor patterns

Karl Zilles, Research Centre Juelich, Juelich, Germany

10:55 – 11:35

Applied anatomy: linking structure and function in the language system

Bernard Mazoyer, University of Bordeaux, Bordeaux, France

11:35 – 12:00
Questions and Answers

Introduction to Imaging Genetics

Half Day Morning Course / 8:00 – 12:00
Room: 309
Organizers:

Jason Stein, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

This course will introduce the fundamentals of "Imaging Genetics," the process of modeling and understanding how genetic variation influences the structure and function of the human brain as measured through brain imaging. The course begins with a brief history of imaging genetics, including discussion on replicability and significance thresholds. Then, we will review recent findings in neuropsychiatric disease risk, what neuroimaging genetics can learn from neuropsychiatric genetics, and how neuroimaging genetics can be used to explain missing mechanisms in neuropsychiatric genetics. We will cover datasets and methods for conducting common and rare variant associations, as well as bioinformatic tools to interpret findings in the context of gene regulation. Overall this course will provide the neuroimager who is not familiar with genetics techniques an understanding of the current state genetics field when exploring neuroimaging phenotypes.

Course Schedule:

8:00 – 8:45
A brief history of imaging genetics
Jason Stein, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

8:45 – 9:30
The genetic influences on neuropsychiatric disease risk
Sven Cichon, Universitat Basel, Basel, Switzerland

9:30 – 10:15
The effect of common genetic variation on human brain structure
Paul Thompson, Imaging Genetics Center, Keck School of Medicine of University of Southern California, Los Angeles, CA, United States

10:15 – 10:30
BREAK

10:30 – 11:15
The effect of rare variation on human brain structure
Carrie Bearden, University of California, Los Angeles, Los Angeles, CA, United States

11:15 – 12:00
Connecting genetic variation to gene regulation
Bernard Ng, University of British Columbia, Vancouver, Canada

Reusing Public Neuroimaging Datasets

Half Day Morning Course / 8:00 – 12:00
Room: 310
Organizers:

Krzysztof Gorgolewski, Stanford University, Stanford, CA, United States

There is a growing number of publicly available human neuroimaging datasets. Recent studies have shown that reusing such data can lead to quality results (Milham et al. 2017) and saved money (Gorgolewski et al. 2015). More and more junior scientists begin their careers by using publicly shared data. We are also starting to see more PhD graduates that only used publicly share data in their graduate work. Reusing publicly available data has its own unique challenges. In this educational seminar we will provide guidance on how to find the right dataset, asses its quality, combine data between modalities as well as deal with statistical challenges of multi site data analysis.

Course Schedule:

8:00 – 8:45
Open science resources for neuroimaging research
R. Cameron Craddock, University of Texas, Austin, TX, United States

8:45 – 9:30
The devil is in the details: accessing phenotypic data for brain-behaviour relationships
Kirstie Whitaker, Alan Turing Institute, London, United Kingdom

9:30 – 10:15
Perfect data doesn't exist, let's ensure they are good enough
Oscar Esteban, Stanford University, Stanford, CA, United States

10:15 – 10:30
BREAK

10:30 – 11:15
Methods to quantify and ameliorate site effects in multi-site MR data
Manjari Narayan, Stanford University, Stanford, CA, United States

11:15 – 12:00
Questions and Answers

12:00 – 13:00
LUNCH

OPEN SCIENCE

12:00 – 13:00
2018 OHBM OpenScience Special InterestGroup "Brain Hacking 101" Workshop
Room: 311
Organizer:
Greg Kiar, McGill Centre for Integrative Neuroscience, McGill University, Quebec, Canada

Over the past ten years, human brain imaging emerged as a computational field with an increasing demand for open source scientific tools that enable researchers to conduct rich analyses. In this hands-on workshop, the hackathon team, lead by Greg Kiar, will provide a gentle introduction to the tools which are prerequisites for a productive hackathon experience. (1) Social coding platforms (github) enable small or large teams of researchers to collaborate on developing code, and keep track of the history of all changes attached with a project. (2) Software containers (docker) are a simple yet powerful technology to package an entire computational environment, which can be shared and deployed easily. (3) Scientific notebooks (jupyter) are interactive documents that mix text, mathematics, code and the results of an analysis, available for all major scientific computing languages (Python, R, Matlab/Octave). Interested participants should come equipped with a laptop and docker installed **https://www.docker.com/**.

Beyond Linear Decoding: An Introduction to Deep Learning Methods

Half Day Afternoon Course / 13:00 – 16:30
Room: 308
Organizers:
Pamela Douglas, UCF/UCLA, Los Angeles, CA, United States

Andrew Doyle, Montreal Neurological Institute, Montreal, Quebec, Canada

Deep learning neural networks have become an indispensable tool in the field of image classification, and are increasingly applied to functional neuroimaging data (e.g., fMRI, EEG, ECoG, fNIRS). Deep neural networks have very quickly surpassed human performance in natural image recognition, and in some cases, the highest-performing architectures closely resemble the processing stream in the human visual cortex. Although these learning algorithms are routinely applied in other imaging domains, they remain in their nascent stage in their applicability to functional neuroimaging data. Here, we introduce state-of-the-art methods in deep learning with a focus on how these new techniques can readily be applied to brain imaging data. Importantly, we focus on novel methods that have recently been developed for interpreting these learning algorithms – which was previously a hindrance for their application to neuroimaging data. Given the success of these methods in other imaging fields, we feel as though introducing these topics to the brain mapping community is both timely and important.

Course Schedule:
13:00-13:30
Beyond Linear Decoding
Pamela Douglas, UCF/UCLA, Los Angeles, CA, United States

13:30-14:00
Introduction to Deep Learning
Andrew Doyle, Montreal Neurological Institute, Montreal, Quebec, Canada

14:00 – 14:30
Hands-on Deep Learning with Keras
Anisha Keshavan, University of Washington, Seattle, WA, United States

14:30-14:40
BREAK

14:40-15:10
Generative Adversarial Networks
Christopher Beckham, Université de Montréal, Montreal, Canada

15:10-15:40
Deep Learning for Segmenting Infant MRI
Pim Moeskops, TU Eindhoven, Eindhoven, Netherlands

15:40-16:10
Interpretation of Deep Learning Algorithms for Neuroimaging
Alexander Binder, Singapore University of Technology and Design, Singapore

16:10 – 16:30
Questions and Answers

Neuroimaging Meta-Analysis

Half Day Afternoon Course / 13:00 – 16:30
Room: 309
Organizers:
Thomas Nichols, University of Oxford, Oxford, United Kingdom

Simon Eickhoff, Institute for Clinical Neuroscience and Medical Psychology, Heinrich-Heine University Dusseldorf, Düsseldorf, Germany

Functional neuroimaging has provided a wealth of information on the cerebral localization of mental functions. In spite of its success, however, several limitations restrict the knowledge that may be gained from each individual experiment. These include a usually rather small sample size, limited reliability of an indirect signal like BOLD fMRI and the need to base inference on relative contrasts between conditions. Such limitations have raised some concerns on the interpretability and validity neuroimaging results, but have also encouraged the development of quantitative

meta- analysis approaches. Neuroimaging meta-analysis is used to summarize a vast amount of research findings across a large number of participants and diverse experimental settings. Such integration then enables statistically valid generalizations on the neural basis of psychological processes in health and disease. They also permit comparisons of different tasks or processes to each other and the modeling of interacting networks. Quantitative meta analysis therefore represents a powerful tool to gain a synoptic view of distributed neuroimaging findings in an objective and impartial fashion, addressing some of the limitations raised above. The purpose of this course is to review the theory and practice of meta-analytic modeling and database-driven syntheses. In order to provide a comprehensive overview, this course spans both basic and advanced topics and addresses practical tips and tools to conduct meta-analytic studies in psychological and clinical applications. This broad coverage will thus provide both a deeper understanding of the methodological underpinnings as well as concrete ideas for how to apply meta analytic techniques to advance brain science.

Course Schedule:

13:00 – 13:20
Foundations and potential of meta-analyses
Peter Fox, National Institute of Mental Health, Bethesda, MD, United States

13:20 – 13:40
How to Plan and Prepare a Meta-Analysis
Robert Langner, Heinrich Heine University Düsseldorf, Jülich, Germany

13:40 – 14:00
Overview on Meta-Analysis methods
Thomas Nichols, University of Oxford, Oxford, United Kingdom

14:00 – 14:20
ALE and BrainMap
Simon Eickhoff, Institute for Clinical Neuroscience and Medical Psychology, Heinrich-Heine University Dusseldorf, Düsseldorf Germany

14:20 – 14:40
Neuroinformatics resources for coordinate and image-based meta-analysis
Tal Yarkoni, University of Texas at Austin, Austin, TX, United States

14:40 – 15:10
BREAK

15:10 – 15:30
Practical Intensity Based Meta-Analysis
Camille Maumet, INRIA, Rennes, France

15:30 – 15:50
Co-activation mapping and parcellation
Sarah Genon, Jülich Research Centre, Jülich, Germany

15:50 – 16:10
Inferring mental states from imaging data: OpenfMRI and the Cognitive Atlas
Russell Poldrack, Stanford University, Stanford, CA, United States

16:10 – 16:30
Questions and Answers

Brain parcellations and functional territories

Half Day Afternoon Course / 13:00 – 16:30
Room: 332
Organizers:
Michel Thiebaut de Schotten, BCBlab, Paris, France

Paula Croxson, Icahn School of Medicine at Mount Sinai, New York, NY, United States

Over the past century and a half, human brain mapping consisted in pinning small functionally responsive areas within the brain. However, the real extent of these areas and their eventual overlap remains unknown. The challenge now facing neuroscience is to define boundaries for functionally responsive areas at the group and the individual level. Many approaches parcellating the brain in areas with different features became recently available including post-mortem and in vivo architectonics, tractography-based connectivity, functional coactivation, and resting state functional connectivity. However, what these methods really measure and what conclusion can be drawn, are not yet fully clear to the scientific community. This course addresses this need and is intended for a large audience of research scientists (e.g. from beginner to advanced level).

Course Schedule:

13:00 – 13:35
Parcellate the brain using anatomical features: Histological and microstructural architecture
Paula Croxson, Icahn School of Medicine at Mount Sinai, New York, NY, United States

13:35 – 14:10
Parcellate the brain using anatomical features: Tractography based subdivision
Michel Thiebaut de Schotten, BCBlab, Paris, France

14:10 – 14:45
Parcellate the brain using functional features: Functional MRI coactivation parcellation
Danilo Bzdock, Research Center Julich, Julich, Germany

14:45 – 15:00
BREAK

15:00 – 15:35
Parcellate the brain using functional features: Resting-state functional connectivity subdivision
Lucina Uddin, Department of Psychology, University of Miami, Miami, FL, United States

15:35 – 16:10
Mapping gradients in functional topographies using resting-state functional connectivity
Daniel Margulies, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

16:10 – 16:30
Questions and Answers

Population neuroscience: How to responsibly handle big data in the age of biobanks

Half Day Afternoon Course / 13:00 – 16:30
Room: 310
Organizers:
Ryan Muetzel, Erasmus MC, Rotterdam, Netherlands

Tonya White, Erasmus University Medical Centre, Rotterdam, Zuid Holland, Netherlands

The UK-Biobank has recently released 10,000 neuroimaging datasets that are accompanied with deep phenotyping. Many researchers have already accessed these data, and have begun demonstrating that many significant associations can be derived from the dataset. The full potential of these data can be better realized with additional consideration of effect size, generalizability, bias, and confounding. For example, one clear example of confounding is the association between coffee consumption and heart disease; the relatively prominent association between coffee consumption and heart disease is driven towards the null when smoking status is considered. Another phenomenon, termed recall bias, can drive up (or down) the level of association when a given group (e.g., a subset of patients with a particular outcome) tend to report events from the past better than others (e.g., patients without a particular outcome) simply because of how they have experienced the event.

Course Schedule:
13:00 – 13:30
Population Neuroimaging: A brief introduction to combining neuroimaging with epidemiology
Tonya White, Erasmus University Medical Centre, Rotterdam, Zuid Holland, Netherlands

13:30 – 14:00
Basic epidemiology: what you need to know
Henning Tiemeier, Harvard University, Boston, MA, United States

14:00 – 14:30
Applied epidemiological concepts and analysis considerations
Arfan Ikram, Erasmus Medical Center, Rotterdam, Netherlands

14:30 – 15:00
Phenotypes, Genotypes & Voxels: A playground next to a nuclear power plant
Anqi Qiu, National University of Singapore, Singapore

15:00 – 15:15
BREAK

15:15 – 15:45
Neuroinformatics and Replication: beyond BASH scripts and winner's curses
Xi-Nian Zuo, Chinese Academy of Sciences, Beijing, China

15:45 – 16:15
Recap & Recommendations: How we can responsibly handle big data
Ryan Muetzel, Erasmus MC, Rotterdam, Netherlands

16:15 – 16:30
Questions and Answers

OPEN SCIENCE

16:30 – 17:15
OpenScience SIG Meeting
Room: 311

Opening Ceremonies and Talairach Lecture

17:30 – 19:30
Hall 405-406

The Opening Ceremonies is the official kick-off where attendees can gather together to celebrate the start of the 24th Annual Meeting! Here we will honor the accomplishments of our colleagues receiving special recognition during the Awards Program for OHBM's Glass Brain Award recognizing a lifetime of achievement; OHBM Young Investigator Award, the Education in Neuroimaging Award and the Replication Award.

Talairach Lecture

I am therefore I think
Professor Karl J. Friston MB, BS, MA, MRCPsych, FMedSci, FRSB, FRS, Wellcome Principal Fellow & Scientific Director: Wellcome Trust Centre for Neuroimaging, London, United Kingdom

This overview of the free energy principle offers an account of embodied exchange with the world that associates neuronal operations with actively inferring the causes of our sensations. Its agenda is to link formal (mathematical) descriptions of dynamical systems to a description of perception in terms of beliefs and goals. The argument has two parts: the first calls on the lawful dynamics of any (weakly mixing) ergodic system – from a single cell organism to a human brain. These lawful dynamics suggest that (internal) states can be interpreted as modelling or predicting the (external) causes of sensory fluctuations. In other words, if a system exists, its internal states must encode probabilistic beliefs about external states. Heuristically, this means that if I exist (am) then I must have beliefs (think). The second part of the argument is that the only tenable beliefs I can entertain about myself are that I exist. This may seem rather obvious; however, it transpires that this is equivalent to believing that the world – and the way it is sampled – will resolve uncertainty about the causes of sensations. We will consider the implications for functional anatomy, in terms of predictive coding and hierarchical architectures, and conclude by looking at the epistemic behaviour that emerges – using simulations of active inference.

Welcome Reception

19:30 – 21:00
Level 3

Join us for the 2018 Annual Meeting Welcome Reception. The reception will be held at the Gardens by the Bay immediately following the Opening Ceremonies and Talairach Lecture on Sunday, June 17.

Please make sure to wear your name badge, which will serve as your ticket to the event. Additional guest badges are $50.00 USD.

MORNING SYMPOSIA
8:00 – 9:15

Cognitive & Affective Neuroscience: From Circuitry to Network and Behavior

Room: Summit 2
Organizers:
Shaozheng Qin, Beijing Normal University (BNU), Beijing, China

Yuejia Luo, Shenzhen University, Shenzhen, China

Yu Rongjun, National University of Singapore, Singapore

Using a multi-disciplinary approach integrating cognitive, EEG/ERP and fMRI techniques and advanced analytic methods, the four speakers in this symposium investigate neurocognitive processes underlying nuanced cognitive and affective functions in humans. the neural basis of changing social norms through persuasion using carefully designed behavioral paradigms and functional MRI technique; Yuejia Luo will describe how high temporal resolution EEG/ERPs predict dynamical profiles of distinct neurocognitive stages involved in emotional negativity bias and its reciprocal interactions with executive functions such as working memory; Yongjun Yu conducts innovative behavioral experiments in conjunction with fMRI and computational modeling approaches to dissociate interactive neural signals involved in affective decision making; and Shaozheng Qin applies fMRI with simultaneous recording skin conductance and advanced analytic approaches (i.e., MVPA, network dynamics) to determine neural representational patterns and subjects can modulate resting state networks, and also uses graph theory network activity levels to delineate dynamic changes in large-scale brain network interactions involved in complex interplay of attention, emotion, memory and executive systems. These talks will provide perspectives on new ways to study brain circuitry and networks underlying interactions between affective and cognitive functions and how to best link the insights from behavioral experiments and neuroimaging studies.

SYMPOSIA SCHEDULE:
8:00 – 8:15
Neural Dynamics of Emotional and Executive Function Interactions Neural correlate
Yuejia Luo, Shenzhen University, Shenzhen, China

8:15 – 8:30
Neural Circuitry of Changing Social Norms through Persuasion
Matsumoto Kenji, Tamagawa University, Tokyo, Japan

8:30 – 8:45
Maximising Rewards vs. Happiness: Interactive Neural Computation of Affective Decision-making
Yu Rongjun, National University of Singapore, Singapore

8:45 – 9:00
Mapping Dynamics of Emotional Brain States and Memory Consolidation: From Circuitry to Network and Behavior
Shaozheng Qin, Beijing Normal University (BNU), Beijing, China

9:00 – 9:15
Questions and Answers

What can functional connectivity tell us about mechanisms of brain function?

Room: 324-326
Organizers:
Andrew Reid, Donders Center for Cognition, Nijmegen, Netherlands

Michael Cole, Rutgers University, Newark, NJ, United States

Linda Geerligs, Donders Institute, Radboud University, Nijmegen, Netherlands

Daniele Marinazzo, Ghent University, Ghent, Belgium

Functional connectivity (FC) analyses have been applied to virtually all functional brain imaging modalities. They are frequently used in fundamental research to study large-scale neuronal communication, as well as in clinical and translational research aimed at characterizing the neural underpinnings of neurological diseases and psychiatric illness. Despite its importance in the field, there remains much debate over how, and to what extent, these findings can be interpreted with respect to the underlying neural mechanisms of brain function. This disagreement may largely be attributable to a lack of rigorous definition for the term, which is important for constraining what inferences can, and cannot, be drawn from a particular FC finding. The goal of this symposium is to outline a conceptual framework for defining FC in a standardized way, applicable regardless of a specific statistical method or imaging modality. Symposium speakers will discuss this topic in the context of their own research, and interaction between speakers, panel members, and community members in the audience will be encouraged. It is our hope that this discussion will help facilitate consensus on two major questions: "What precisely can (and cannot) be inferred from a given FC measure?"; and "How do we go from FC observations to mechanistic interpretations?". The symposium speakers will address these questions from different methodological backgrounds (fMRI, M/EEG and electrophysiology).

SYMPOSIA SCHEDULE:
8:00 – 8:15
Estimation of large-scale network synchronization from MEG /EEG data
Satu Palva, University of Helsinki, Helsinki, Finland

8:15 – 8:30

Resolving ambiguities in functional connectivity

Eugene Duff, Oxford University, Oxford, United Kingdom

8:30 – 8:45

Neural correlates of dynamic functional connectivity measures

Garth Thompson, ShanghaiTech University, Shanghai, China

8:45 – 9:00

Functional connectivity in human electrophysiological recordings

Esther Florin, Heinrich Heine University Düsseldorf, Düsseldorf, Germany

9:00 – 9:15

Questions and Answers

Brodmann (1868-1918): A pioneer of human brain mapping and his impact on present and future concepts

Hall 405-406
Organizers:
Karl Zilles, Research Centre Jülich, Jülich, Germany

John D. van Horn, USC Institute of Neuroimaging and Informatics, Los Angeles, CA, United States

The 150th anniversary of Korbinian Brodmann's birth (17 November 1868) as well as the 100th anniversary of his death (22 August 1918) will be in the year 2018. Given the historical, scientific and enduring importance of his work on our field of brain mapping, the dual anniversary is exactly the right time that recognition of this pioneer and his extremely influential work should be undertaken by the OHBM at its annual meeting. He published a series of seminal contributions which represent the foundation of modern cytoarchitectonics not only of the human but also of the mammalian cerebral cortex in general. He described the cytoarchitectonic segregation of the entire cortex based on his observations. The resulting map is used for the localization of functional MRI data. It is also the fundamental database of actual atlases. Innumerable other studies are devoted to actualize his map in 3D-representations and to interpret it from a functional perspective. Although the schematic map seems to be the only aspect of his work presently used, his theoretical concepts, organizational principles of cortical areas, evolution of the cerebral cortex, fundamental conditions of its structures and possible functional implications are equally important but largely not known to the community. Only part of his work has been translated (his monography from 1909), but often not recognized in necessary detail, since his original publications comprise even more and possibly more important aspects for anatomical brain mapping. This symposium/half-day educational course aims to remember of full spectrum of Brodmann's work, but above all to demonstrate his influence on and importance for actual research strategies in various fields of modern neuroimaging.

SYMPOSIA SCHEDULE:

8:00 – 8:12

Life of Korbinian Brodmann and his concepts of cortical organization for present brain mapping projects

Karl Zilles, Research Centre Jülich, Jülich, Germany

8:12 – 8:24

Next generation cytoarchitectonics – challenges and perspectives in times of Big Data

Katrin Amunts, Research Centre Jülich, Jülich, Germany

8:24 – 8:36

Multivariate morphological brain signatures

John D. van Horn, USC Institute of Neuroimaging and Informatics, Los Angeles, CA, United States

8:36 – 8:48

Brodmann areas and neurochemical mechanisms

8:48 – 9:00

Automated parcellation and cortical layer analysis of the BigBrain

Alan C. Evans, McGill University, Montreal, Canada

9:00 – 9:15

Questions and Answers

Population & imaging genetics approaches: what can brain imaging contribute?

Room: Summit 1
Organizers:
Vince Calhoun, Mind/UNM, Albuquerque, NM, United States

Jingyu Liu, The Mind Research Network, Albuquerque, NM, United States

The integration of imaging and genetic/epigenetic data in population neuroscience studies enables elucidation of the links between brain regions/networks, genes, and gene-environment relationships, and importantly the integration of biological pathways. Imaging genetics approaches have evolved from candidate gene studies where simple correlative analysis of one or a small number of genes is replaced with genome wide analysis (GWAS), which provide a more comprehensive view of the often complex underlying relationships. A variety of analysis approaches have been utilized including massive univariate correlation on one end to the use of multivariate data-driven approaches such as independent component analysis on the other end. In this symposium we discuss some of the major ongoing efforts in imaging genetics including large harmonized studies such as generation R and the UK biobank as well as meta-analytic approaches such as the international ENIGMA study. In addition, we highlight some of the interesting informatics tools and data sets that can be brought to bear on such studies including

an analysis of cross-tissue effects (e.g. brain, blood, saliva) and their relationship to brain imaging data. Various important data processing steps will be highlighted including quality control, the impact of sex and ethnicity, batch effects, and more with the target audience being those who have imaging experience and are interesting in expanding to imaging genetics.

SYMPOSIA SCHEDULE:

8:00 – 8:15

Cross-tissue investigation of the interplay of genetics, epigenetics and brain in schizophrenia

Jingyu Liu, The Mind Research Network, Albuquerque, NM, United States

8:15 – 8:30

Brain developmental differences associated with polygenic and polyenvironmental risk for neurodevelopmental disorders in school age children

Tonya White, Erasmus University Medical Centre, Rotterdam, Zuid Holland, Netherlands

8:30 – 8:45

Imaging genetics from a worldwide perspective

Jessica Turner, Georgia State University, Atlanta, GA, United States

8:45 – 9:00

GWAS of brain structure and function from 15,000 UK Biobank participants

Fidel Alfaro Almagro, FMRIB Centre, WIN, University of Oxford, Oxford, United Kingdom

9:00 – 9:15

Questions and Answers

9:15 – 9:30

BREAK

KEYNOTE LECTURE

9:30 – 10:15

Hall 405-406

Imaging Pain, Relief and Anaesthesia-induced altered states of Perception

Professor Irene Tracey, MA (Oxon), D.Phil., FRCA, FMedSci, Head of Department & Nuffield Chair in Anaesthetic Science, Nuffield Department of Clinical Neurosciences, University of Oxford, United Kingdom

Acute pain is the body's alarm and warning system. Chronic pain is the system gone wrong, is one of the largest medical health problems and a disease in its own right. The brain is key to painful experiences and relating specific neurophysiologic measures from advanced brain imaging to perceptual or non-perceptual changes in pain perception induced by sensitisation, psychological or pharmacological mechanisms has tremendous value. This talk will describe experiments that have probed this complex, multidimensional and subjective experience using neuroimaging and describe recent work aimed to understand how altered states of consciousness impact perception.

10:15 – 10:25

BREAK

Best Paper Award Presentations

10:25 – 10:50

Hall 405-406

The following awards will be announced:

The *Springer* Brain Topography's Editor's Choice Award

The *Wiley* Human Brain Mapping's Editor's Choice Awards

The *Elsevier* NeuroImage Best Paper Award

OPEN SCIENCE

10:30 – 12:00

OHBM Hackathon Projects 2018

Room: 311

LOC Symposium

Mapping Brain Functional Connectivity to Behavior In Young and Old: Methods, Illustrations and Challenges

10:50 – 12:00

Hall 405-406

Organizers:

*OHBM 2018 Local Organizing Committee –
Chaired by Michael W. Chee, Duke-NUS Graduate
Medical School, Singapore*

The field of human brain functional connectivity opened new vistas for methodological development and theories of brain function and dysfunction but how do these advances translate to benefits to a better understanding of behavior and clinically meaningful outcomes. We will try to span that bridge from state-of-the-art parcellations to how connectivity is applied in practice to the evaluation of young and old persons.

SYMPOSIA SCHEDULE:

10:50 – 11:07

Spatial Topography of Individual-Specific Cortical Networks Predicts Human Cognition, Personality and Emotion

B.T. Thomas Yeo, National University of Singapore, Singapore

11:07 – 11:25

Brain Functional Connectivity in Ageing and Neurodegenerative Disorders: From Nodes to Networks

Juan (Helen) Zhou, Duke-NUS Graduate Medical School, Singapore

11:25 – 11:42

Nature and Nurture: Evidence from Pediatric Neuroimaging and Genetics

Anqi Qiu, National University of Singapore, Singapore

11:42 – 12:00

Sleepiness During The 'Resting Sate': Nuisance or Opportunity?

Michael W. Chee, Duke-NUS Graduate Medical School, Singapore

12:00 – 12:45
LUNCH ON OWN

The OHBM Publishing Initiative Roundtable

12:00 – 13:00

Room: 324-326

Publishing is central for the research communities to communicate, vet and being acknowledged for their research. At this round table The OHBM Publishing Initiative Committee (TOPIC) will present the vision and first ideas of the committee for the future OHBM publishing platform, named Aperture. The roundtable will be an opportunity for TOPIC to hear from the OHBM attendees on what services Aperture could and should provide for the OHBM community and beyond. Bring your own lunch.

OPEN SCIENCE

12:30 – 14:30

Anatomical imaging & pattern classification

Room: 311

- Brain Intensity AbNormality Classification Algorithm (BIANCA), Ludovica Griffanti
- Computational Anatomy Toolbox (CAT12), Christian Gaser
- Pattern Recognition for Neuroimaging Toolbox (PRoNTo), Janaina Mourao-Miranda

Multi-Modality Symposium

13:15 – 14:30

Hall 405-406

Organizers:

Alain Dagher, Montreal Neurological Institute, McGill University, Montreal, Canada

Urs Ribary, Simon Fraser University, Vancouver, Canada

Bernard Mazoyer, University of Bordeaux, Bordeaux, France

SYMPOSIA SCHEDULE:

13:15 – 13:30

The added synergy of combined MRI and PET neuroimaging

Gitte Moos Knudsen, igshospitalet and University of Copenhagen, Copenhagen, Denmark

13:30 – 13:45

Multifactorial causal modeling of neurological disorders

Yasser Iturria-Medina, Montreal Neurological Institute, McGill University, Montreal, QC, Canada

13:45 – 14:00

Data and model driven EEG/fMRI fusion

Pedro Valdes-Sosa, The Clinical Hospital of Chengdu Brain Science Institute/Cuban Neuroscience Center, Cengdu, China

14:00 – 14:15

Using NIRS-EEG as a clinical tool in children

Anne Gallagher, Université de Montreal, Montreal, Canada

ORAL SESSIONS

14:45 – 16:00

Oral session presentations are chosen by the Program Committee from submitted abstracts using criteria of quality and timeliness; a wide spectrum of investigation is represented. Authors listed are the presenting authors, a full list of authors can be found in the Abstract / Poster Listing Booklet (**www.humanbrainmapping.org/2018Posters**), in the E-poster search (**http://ww5.aievolution.com/hbm1801/**) or in the mobile app.

Modeling and Analysis Methods I

Hall 405-406
Chairs:
Xi-Nian Zuo, Chinese Academy of Sciences, Beijing, China

Christine Guo, QIMR Berghofer, Herston, Queensland, Australia

14:45 – 14:57
2533: All Resolution Inference: Increasing Spatial Specificity of fMRI with Valid Circular Inference
Wouter Weeda, Leiden University, Leiden, Netherlands

14:57 – 15:09
2354: Hierarchical Prediction Errors in MMN under Pharmacological Manipulations: Single-Trial EEG Analyses
Lilian Weber, Translational Neuromodeling Unit (TNU), University of Zürich & ETH Zurich, Zurich, Switzerland

15:09 – 15:21
2442: A Principled Approach to Statistical Connectomics and Mega-Analysis
Eric Bridgeford, Johns Hopkins University, Baltimore, MD, United States

15:21 – 15:33
2571: Progress in multivariate analysis in brain imaging with Nilearn
Bertrand Thirion, Parietal Team, INRIA/Neurospin Saclay Saclay, France

15:33 – 15:45
2331: Bootstrapping FOD: Accuracy advantages and other benefits of estimating shape uncertainty
Marina Rakic, King's College London, London, United Kingdom

15:45 – 15:57
2535: Matrix-normal models for fMRI analysis
Adam Charles, Princeton University, Princeton, NJ, United States

Disorders of the Nervous System – Neurology

Room: Summit 1
Chair:
Jessica Damoiseaux, Wayne State University, Detroit, MI, United States

Juan (Helen) Zhou, Duke-NUS Medical School, Singapore

14:45 – 14:57
1636: Multidimensional cognitive subtyping in temporal lobe epilepsy: brain morphology and connectomics
Raúl Rodríguez Cruces, Universidad Nacional Autónoma de México, Querétaro, Mexico

14:57 – 15:09
1306: Deep convolutional neural networks for detection of cortical dysplasia: a multicenter validation
Ravnoor Gill, Montreal Neurological Institute, McGill University, Montréal, Quebec, Canada

15:09 – 15:21
1361: Automated measures from neuromelanin MRI reveal neurodegeneration in REM sleep behaviour disorder
Ludovica Griffanti, FMRIB, Wellcome Centre For Integrative Neuroimaging, University of Oxford, Oxford, United Kingdom

15:21 – 15:33
1109: Cerebrovascular disease influences brain network connectivity in prodromal and clinical AD
Ashwati Vipin, Duke-NUS Medical School, Singapore

15:33 – 15:45
1146: Neuroimaging derived "brain-age" interacts with amyloid and CSF biomarkers in Alzheimer's Disease
Sebastian Gabriel Popescu, Imperial College London, London, United Kingdom

15:45 – 15:57
1348: An Epidemic Spread Model Replicates Atrophy Patterns in Parkinson's Disease
Ying-Qiu Zheng, Montreal Neurological Institute, Montreal, Quebec, Canada

Neuroanatomy and Physiology

Room: 324-326
Chairs:
Alan Evans, McGill University, Montreal, Canada

Svenja Caspers, Research Centre Jülich, Jülich, Germany

14:45 – 14:57
2713: BigBrain: 1D convolutional neural networks for automated segmentation of cortical layers
Konrad Wagstyl, University of Cambridge, Cambridge, United Kingdom

14:57 – 15:09
2714: Scalable cytoarchitectonic characterization in 3D of large optically cleared human neocortex samples
Alard Roebroeck, Maastricht University, Maastricht, Netherlands

15:09 – 15:21
2772: Cerebellar organization is sensorimotor-fugal, and lobules VIII - IX/X share hierarchical principles
Xavier Guell, MIT, Cambridge, MA, United States

15:21 – 15:33
2704: Microstructure profile covariance reflects the principal gradient of functional connectivity
Casey Paquola, McGill University, Montreal, Canada

15:33 – 15:45
2702: Transmitter receptors and the laminar organization of the human primary motor cortex
Nicola Palomero-Gallagher, Research Centre Juelich, Juelich, Germany

15:45 – 15:57
2885: Glucose metabolism in cortical white matter is linked to myelination and functional connectivity
Ehsan Shokri Kojori, National Institudes of Health, Bethesda, MD, United States

Decision Making

Room: Summit 2
Chairs:
Jessica Cohen, University of North Carolina, Chapel HIll, NC, United States

Lucina Uddin, Department of Psychology, University of Miami, Miami, FL, United States

14:45 – 14:57
1597: Perceptual learning supports the bias in future value-driven decisions
Sara Jahfari, Spinoza Centre for Neuroimaging, Amsterdam, NH, Netherlands

14:57 – 15:09
1581: Decisions to explore are preceded by increased baseline arousal
Anjali Raja Beharelle, SNS Lab, University of Zurich, Zurich, Switzerland

15:09 – 15:21
1493: Regulating negative emotions affects dietary choice via modulation of value signals in vmPFC
Carmen Morawetz, Freie Universität Berlin, Berlin, Germany

15:21 – 15:33
1586: Neurocomputational mechanisms underlying motivational biases in perceptual decision-making
Yuan Chang Leong, Stanford University, Stanford, CA, United States

15:33 – 5:45
2929: Classification of collaboration and competition with different reasoning orders using fMRI data
Dong-Youl Kim, Korea University, Seoul, Republic of Korea

15:45 – 15:57
1577: Transforming brain signals related to value evaluation and self-control into behavioural choices
Rujing Zha, USTC, Hefei, China

BREAK
16:00 – 16:15

KEYNOTE LECTURE

16:15 – 17:00
Hall 405-406
Bridging the gap: From large-scale aggregation to individual prediction
Simon B. Eickhoff, MD, Research Center Jülich, Germany, Heirich-Heine University Düsseldorf, Germany

This talk will outline, how regional brain segregation and task-dependent recruitment of distributed networks, each mapped across thousands of subjects, can provide critical a priori information for statistical learning and individual prediction. This approach will open up new possibilities for characterizing inter-individual variability and developing individualized healthcare while at the same time contributing to a better understanding of human brain organization.

17:00 – 17:15
BREAK

UP CLOSE AND PERSONAL WITH SUSAN BOOKHEIMER

17:15 – 18:15
Room: 324-326
Up Close and Personal with Susan Bookheimer
*Susan Bookheimer, PhD, UCLA School of Medicine,
Los Angeles, CA, United States*

Past OHBM Chair Susan Bookheimer will discuss her career as a neuroimaging researcher and her role as a founding member of the OHBM community. In discussion with Russ Poldrack, she will talk about the early days of PET and fMRI imaging, and about her experiences as a female scientist.

Student/Post Doc Monday Night Social

20:00
*Where: Altimate and 1-Altitude, 1 Raffles Place,
Singapore 048616*

Bring your OHBM badge for free admission and free drink!

TUESDAY, JUNE 19, 2018 | **SCIENTIFIC PROGRAM**

MORNING SYMPOSIA
8:00 – 9:15

Dynamics of resting-state functional connectivity: Methods and models

Room: Summit 1
Organizers:
Andrew Zalesky, University of Melbourne, Melbourne, Australia

Raphael Liegeois, National University of Singapore, Singapore

Functional brain connectivity displays complex spatiotemporal dynamics that span multiple timescales. Characterising these dynamics with neuroimaging modalities is an active area of research that has given rise to several issues that remain contested, from the basic definitions of stationarity and dynamics, to the impact of head motion and physiological noise on time-resolved connectivity. Debate also continues about whether functional connectivity dynamics are most parsimoniously modelled as discrete connectivity states or a continuum of change. Our speakers will consider the merits of both discrete and continuous models, and demonstrate the utility of characterizing connectivity dynamics with resting-state fMRI data. To begin, Andrew Zalesky will provide an overview of the current state-of-the-art in connectivity dynamics and introduce the use of surrogate data to test hypotheses about stationarity.

Mark Woolrich will then introduce a hidden Markov model (HMM) to characterize discrete transitions among putative brain states, while Raphael Liegeois will argue against the existence of discrete transitions and present a continuous autoregressive model of functional connectivity dynamics. To provide attendees with an understanding of potential neural mechanisms underlying connectivity dynamics, Joana Cabral will present a measure of switching dynamics and introduce the concept of multi-stability, as it relates to cognitive processing and behaviour. Attendees will gain an appreciation of the methods and models available to investigate dynamic functional connectivity, understand the limitations of studying these dynamics with fMRI and learn best practices for designing functional neuroimaging experiments to investigate dynamic changes in functional connectivity. Why this topic is timely: Time-resolved analysis of functional neuroimaging data has gained significant prominence in the last few years. This area of neuroimaging is likely to give rise to a topical, timely and well-attended session. Updating the neuroimaging community about the current state-of-the-art and best practices for mapping dynamic changes in functional brain connectivity is timely and appeals to a broad cross-section of attendees. Our symposium appeals to both methodologists focused on mapping network dynamics and neuroscientists interested in understanding the relation between cognition/behaviour and brain dynamics.

SYMPOSIA SCHEDULE:

8:00 – 8:15

Functional connectivity dynamics: Controversies, null models and clinical utility

Andrew Zalesky, University of Melbourne, Melbourne, Australia

8:15 – 8:30

Time dynamics of resting brain networks

Mark Woolrich, Oxford University, Oxford, United Kingdom

8:30 – 8:45

Dynamic and static resting-state functional connectivity encode complementary behavioral information

Raphael Liegeois, National University of Singapore, Singapore

8:45 – 9:00

The switching choreography of the functional connectome

Joana Cabral, Pompeu Fabra University, Barcelona, Spain

9:00 – 9:15

Questions and Answers

Prediction bias in perceptual experience and decision making

Hall 405-406

Organizer:

Javeria Hashmi, Dalhousie University, Halifax, Canada

Although psychological and cognitive research has established the role of bias in perception for several years, recently several neuroimaging studies have the emphasis on top-down processes and knowledge of how priors are used in learning and decision making. A persuasive adaptation of priors in research approaches are generative models such as predictive coding, Bayesian and computational models that offer a principled, model-driven and deductive approach for studying brain function. The central focus of this approach is to identify a multi-purpose model for understanding heuristic brain functions such as aversive and reward-based learning. However, an exposition of how predictions can bias our mental experiences away from sense data is a viable source of insights on perceptual processes in both health and disease. The objective and deductive evidence directs new epistemological challenges to how we view sense perception in general and it may lead to new demarcations of boundaries and limits of perception. Studies in prediction bias also serve an important function of isolating lacunae in brain function that contribute to mental health and social issues. Overall, we argue that understanding the neural underpinning of prediction bias is useful because it has a wide range of social and clinical implications.

SYMPOSIA SCHEDULE:

8:00 – 8:20

Hallucinations as top-down effects on perception

Philip Corlett, Yale University, New Haven, CT, United States

8:20 – 8:40

Predictive states exert strong biases in pain perception

Javeria Hashmi, Dalhousie University, Halifax, Canada

8:40 – 9:00

Predicting threat: structure, dynamics, and individual differences

Kestutis Kveraga, Harvard Medical School, Mass General Hospital, Cambridge, MA, United States

9:00 – 9:15

Questions and Answers

Neuroplasticity: From bench to practice

Room: Summit 2

Organizers:

SH Annabel Chen, Nanyang Technological University, Singapore

Tatia Lee, Laboratory of Neuropsychology and Laboratory of Cognitive Affective Neuroscience, Hong Kong

Neuroplasticity, the ability of the brain to change throughout life, contributes a dynamic and exciting avenue to the science of brain mapping. Neuroscientists are still unraveling how neuroplasticity occurs with one of the most recent findings showing how newborn neurons from neurogenesis in the adult brain weave themselves into a "new and improved" tapestry (Adlaf et al, 2017). Unlocking the secrets of constructive neuroplasticity would have great implications to ameliorate cognitive decline as well as compromised brains. The current proposed symposium hopes to provide understanding of neuroplasticity in the adult brain first from invasive brain mapping to understand connectomics and the effect of physiological defect (e.g. blindness) on the reorganization of brain networks, to non-invasive methods of cognitive and exercise training to stimulate neuroplasticity (e.g. in psychopathology and neurorehabilitation). We hope the symposium will provide a platform for discussion of the importance of neuroplasticity in brain mapping and increase interest to further research in stimulating neuroplasticity using non-invasive methods.

SYMPOSIA SCHEDULE:

8:00 – 8:15

The functional anatomy of the brain revisited: towards Connectomics and neuroplasticity

Hugues Duffau, University Hospital of Montpellier, Montpellier, France

8:15 – 8:30

The effect of congenital blindness on body-sensitivity in the lateral occipito-temporal cortex

Ryo Kitada, Nanyang Technological University, Singapore

8:30 – 8:45

Are individuals with higher psychopathic traits better learners at lying? Behavioural and neural evidence

Robin Shao, University of Hong Kong, Hong Kong

8:45 – 9:00

Self-Regulatory Learning for Activity Performance among Post-stroke Patients

Chetwyn Chan, The Hong Kong Polytechnic University, Hong Kong

9:00 – 9:15

Questions and Answers

Data science in neuroscience: Generating insight from rich, complex and messy data

Room: 324-326

Organizers:

Bertrand Thirion, Parietal Team, INRIA/Neurospin Saclay, Saclay, France

Danilo Bzdok, Department of Psychiatry, RWTH Aachen University, Aachen, NRW, Germany

Following astronomy, particle physics, and genetics, massive data collection is currently becoming a game changerin neuroscience and medicine (House of Common, UK, 2016; National Research Council, USA, 2013). There is analways-larger interest in and pressure for data sharing, open access, and consortiums that build "big data" repositories for the healthy and diseased brain. For instance, UK Biobank is a longitudinal population study dedicated to the genetic and environmental influence on mental and other disorders. 500,000 enrolled volunteers have undergone an extensive battery of clinical diagnostics from brain scans to bone density with a >25 year follow-up. In the US, the Precision Medicine Initiative announced in 2015 to even profile 1,000,000 individuals. There is now an unprecedented, rapidly growing opportunity to provide principled answers to human brain function and its disturbances in mental disease.

What is currently changing is the questions that can be asked about a given brain phenomenon quantified in data. Indeed, the more brain recordings are available, the more can be learned about the brain given adequate statistical models. However, the more variables per observation are to be analyzed, the bigger the modeling challenges become at the statistical and computational level. This will require a symbiotic interplay between neuroscientific reasoning styles and statistical reasoning styles (Abbott, 2016; Goodman, 2016). Successful exploitation of

the data wealth will require a new generation of computationally and statistically trained neuroscientists with a shift in data analysis practices (McKinsey Global Institute, 2011 and 2016). Indeed, brain sciences have been identified as the most data-rich among all medical specialties, with a dominant contribution from medical imaging techniques such as functional MRI (Nature Editorial, 2016). Due to the complexity of the patterns that need to be detected in neurobiology, a human cannot provide explicit, fine-detailed brain mechanisms. Instead, data science algorithms have the potential to become widespread tools that distill information from large data sets to turn unstructured data accumulation into structured knowledge.

SYMPOSIA SCHEDULE:

8:00 – 8:15

Learning from neuroimaging and clinical data: a multiple-source machine learning approach for mental health disorders

Janaina Mourao-Miranda, University College London, London, United Kingdom

8:15 – 8:30

Connectome Coding

Joshua Vogelstein, John Hopkins University, Baltimore, MD, United States

8:30 – 8:45

Learning from heterogeneous data to increase sample size: Why neuroscientists should care

Alexandre Gramfort, Inria, Palaiseau, France

8:45 – 9:00

Population neuroscience meets computer-age statistics: Extending what we can learn about the brain?

Danilo Bzdok, Department of Psychiatry, RWTH Aachen University, Aachen, NRW, Germany

9:00 – 9:15

Questions and Answers

BREAK

9:15 – 9:30

KEYNOTE LECTURE

9:30 – 10:15
Hall 405-406

Towards Causal Neuroimaging: Whole-Brain Dynamics and Modelling. Summary

Prof. Dr. Gustavo Deco, Director Center for Brain and Cognition, Theoretical and Computational Group, Universitat Pompeu Fabra / ICREA, Barcelona, Spain

Neuroimaging has opened an unprecedented window on human brain activity, raising great expectations for novel mechanistic insights into brain function in health and disease to emerge. Unfortunately, the largely correlational findings have not delivered the anticipated outcomes yet. In contrast, we propose a computational framework that will allow for causal manipulation of models of multimodal neuroimaging data, opening up for a causal characterisation of brain dynamics and functions. Furthermore, this framework open the development of new biomarkers of disease subgroups and a better understanding of underlying mechanisms. The framework will estimate the spatiotemporal decomposition of neuroimaging data to fit the transition probabilities characterising the transitions between different brain states in health and disease. Furthermore, adding a coupled, entangled neuromodulator system using receptor binding data will open up for novel methods for rational drug discovery in silico.

10:15 – 10:30
BREAK

ORAL SESSIONS

10:30 – 11:45
Oral session presentations are chosen by the Program Committee from submitted abstracts using criteria of quality and timeliness; a wide spectrum of investigation is represented. Authors listed are the presenting authors, a full list of authors can be found in the Abstract / Poster Listing Booklet (**www.humanbrainmapping.org/2018Posters**), in the E-poster search (**http://ww5.aievolution.com/hbm1801/**) or in the mobile app.

Imaging Methods – Acquisition I

Hall 405-406
Chairs:
Michael Milham, Child Mind Institute, Nathan Kline Institute, New York, NY, United States

Duke Shereen, University of California Irvine, Irvine, CA, United States

10:30 – 10:42
1727: Distortion-Matched Anatomical Imaging Using Inversion Recovery-Prepared EPI for High-Resolution fMRI
Adnan Shah, CiNet, NICT, Suita-shi, Osaka, Japan

10:42 – 10:54
1729: Ultra-high-resolution fMRI: a critical assessment
Kendrick Kay, University of Minnesota, Minneapolis, MN, United States

10:54 – 11:06
2532: Estimating Single-trial BOLD Amplitude and Latency in Task-based fMRI Data with an Unknown HRF
Wouter Weeda, Leiden University, Leiden, Netherlands

11:06 – 11:18
2864: Multi-band accelerated high resolution population receptive field mapping on 7T
Allan Hummer, Medical University of Vienna, Vienna, Austria

11:18 – 11:30
1732: Cardiac response is phase-shifted while respiratory response has a fixed polarity in rs-fMRI
Katherine A Koenig, Cleveland Clinic, Cleveland, OH, United States

11:30 – 11:42
1847: Validation of high angular resolution diffusion MRI models in the human brain with PS-OCT
Anastasia Yendiki, MGH, Boston, MA, United States

Informatics

Room: 324-326
Chairs:
Camille Maumet, INRA, Paris, France

Michael Hanke, Institut für Psychologie, Berlin, Germany

10:30 – 10:42
2000: ReproIn: automatic generation of shareable, version-controlled BIDS datasets from MR scanners
Matteo Visconti di Oleggio Castello, Dartmouth College, Hanover, NH, United States

10:42 – 10:54
2019: Same Data – Different Software – Different Results? Analytic Variability of Group fMRI Results.
Alexander Bowring, University of Oxford, Oxford, United Kingdom

10:54 – 11:06
2537: FMRelI – a toolbox for the analysis of fMRI reliability
Vanessa Teckentrup, University of Tübingen, Tübingen, Germany

11:06 – 11:18
2539: Encoding models for the Cognitive Neuroscience Literature
Jerome Dockes, Inria, Paris, France

11:18 – 11:30
1879: An atlas of intracranial EEG: "normal" neurophysiological activity in different cortical regions
Birgit Frauscher, Montreal Neurological Institute and Hospital, Montreal, QC, Canada

11:30 – 11:42
1713: Spatiotemporal Neonatal Cortical Surface Atlases Construction from 39 to 44 Weeks Using 764 Subjects
Gang Li, UNC-Chapel Hill, Chapel Hill, NC, United States

Lifespan Development

Room: Summit 2
Chairs:
Nathan Spreng, Montreal Neurological Institute, McGill University, Montreal, Quebec, Canada

Leah Somerville, Harvard University, Cambridge, MA, United States

10:30 – 10:42
2231: White matter hemispheric asymmetry of the newborn brain: a multi-centric diffusion MRI study
Andras Jakab, University Children's Hospital Zürich, Zürich, Switzerland

10:42 – 10:54
2232: Multi-Layer Functional Connectome Reveals New Developmental Patterns of the Infant Brain
Han Zhang, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

10:54 – 11:06
2234: Adolescent development of functional brain networks
František Váša, University of Cambridge, Cambridge, United Kingdom

11:06 – 11:18
1778: Whole Lifespan Development of Hippocampal Functional Connectivity
Wan Li, Beijing University of Technology, Beijing, China

11:18 – 11:30
2190: Structural brain aging and neurobiology, lifestyle and genetics in 8,137 UK Biobank participants
Lu Zhao, University of Southern California, Los Angeles, CA, United States

11:30 – 11:42
2186: Generalizing age effects on brain structure and cognition – a two-study comparison approach
Christiane Jockwitz, Institute of Neuroscience and Medicine, Research Center Juelich, Juelich, Germany

Brain Stimulation Methods

Room: Summit 2
Chair:
Doris Doudet, University of British Columbia, Vancouver, BC, Canada

Vince Clark, University of New Mexico, NM, United States

10:30 – 10:42
1029: Focal non-invasive disruption of resting-state connectivity using ultrasound neurostimulation
Lennart Verhagen, WIN, Department of Experimental Psychology, University of Oxford, Oxford, United Kingdom

10:42 – 10:54
1001: Brain connectivity change with deep brain stimulation and levodopa treatment in Parkinson's disease
Karsten Mueller, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

10:54 – 11:06
1052: Inhibitory TMS differentially affects brain network communication depending on the stimulation site
Gabriel Castrillon, Technische Universität München, München, Germany

11:06 – 11:18
1604: Causal account of brain network computations driving value-based choice
Marius Moisa, SNS lab, University of Zurich, Zurich, Switzerland

11:18 – 11:30
1009: Understanding the effects of transcranial direct current stimulation on response inhibition
Lucia Li, Imperial College London, London, United Kingdom

11:30 – 11:42
1232: Longitudinal Structural Covariance Associated with Antidepressant Electroconvulsive Therapy Response
Benjamin Wade, UCLA, Los Angeles, CA, United States

11:45 – 12:45
LUNCH ON OWN

Latin American Brain Mapping Chapter Meeting

12:00 – 13:00
Room: 302

Student/Post Doc SIG Mentorship and Career Development Symposium: The Secrets behind Success

Student/Post Doc SIG Mentoring Roundtable
12:00 – 12:45
Room: Summit 1

The Mentorship and Career Development symposium is an annual initiative by the OHBM Student and Postdoc SIG, dedicated to early career researchers. This year, the theme of the event is 'The Secrets behind Success'.

Smooth career paths are very rare in academia. Naturally, researchers typically mention only successful events in their CV, while in fact, successful applications are usually only the tip of the iceberg. This positive bias gives an impression that to some researchers, academic careers are effortless, which is obviously not true.In this panel, we will discuss strategies to overcome everyday issues in academia, with particular focus on how to manage yourself when facing failure.

Furthermore, in order to meet the growing demand for successful transitions between academia and industry, the symposium will also feature a talk on how to smoothly switch between an industry and a scientific career.

Student / Post Doc SIG Lunch with Mentors

12:45 – 13:30
Room: Summit 1

The Mentorship and Career Development symposium is an annual initiative by the OHBM Student and Postdoc SIG, dedicated to early career researchers. This year, the theme of the event is 'The Secrets behind Success'.

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Furthermore, in order to meet the growing demand for successful transitions between academia and industry, the symposium will also feature a talk on how to smoothly switch between an industry and a scientific career.

This event requires registration. Please register for the Lunch with Mentors event at **http://www.ohbmtrainees.com**.

OPEN SCIENCE

12:30 – 14:30
Functional imaging
Room: 311
- Group ICA Of fMRI Toolbox (GIFT) & Fusion ICA Toolbox (FIT), Vince Calhoun
- fMRIprep, A Robust Preprocessing Pipeline for fMRI Data, Chris Gorgolewski
- FSLnets network modelling, Eugene Duff

SOFTWARE DEMONSTRATIONS

12:45 – 14:45
Hall 401-403

2706: Neuroimaging Correlates of Maternal Smoking Later in Life: Analysis of the UK Biobank Cohort
Lauren Salminen, University of Southern California, Marina del Rey, CA, United States

2050: PIVT: A Platform Independent Visualization Tool
Armin Taheri, The Mind Research Network, Albuquerque, NM, United States

2309: Crowdsourced development and validation of neurocomputational models of psychological processes
Luke Chang, Dartmouth College, Hanover, NH, United States

2032: Multi-user Visualization of Brain Imaging Data in Virtual Reality
David Shattuck, UCLA, Los Angeles, CA, United States

2035: FMRIprep: Building a Robust Preprocessing Pipeline for fMRI
Christopher Markiewic, Stanford University, Stanford, CA, United States

2037: Clowdr: a micro-service model for scalable, reproducible, and accessible neuroinformatics
Gregory Kiar, McGill University, Montreal, Canada

2403: Porcupine: a visual pipeline tool for neuroimaging analysis
Tim van Mourik, Donders Institute for Brain and Cognition, Nijmegen, Netherlands

2023: Enabling large-scale fMRI analysis with BrainIAK
Mihai Capotă, Intel Corporation, Hillsboro, OR, United States

POSTER SESSION

12:45 – 14:45
Hall 401-403
All Posters #1000-2962
Even number posters will present from 12:45 – 13:45.
Odd number posters will present 13:45 - 14:45.
All poster categories will be presented today.

See complete list of poster categories and poster hall layout on pages 56-57.

AFTERNOON SYMPOSIA

14:45 – 16:00

Critical Perspectives on Time-Varying Models for BOLD Functional Connectivity

Hall 405-406
Organizer:
Manjari Narayan, Stanford University, Palo Alto, CA, United States

In recent years, "dynamic" functional connectivity or functional connectivity that changes with time has become an emerging area of investigation in fMRI. However, other types of time-varying models of functional connectivity are also possible where the time-varying parameters are not functional connectivity but rather other second-order statistics of the BOLD signal such as the autocorrelation or the signal variance. For example, there is a growing interest in "temporal networks" that capture dependencies between individual time-points during rest or task-fMRI. Moreover, multiple and distinct time-varying models may fit the same fMRI data equally well. Consequently, it is unclear whether the time-varying aspects of the inferred models have neurobiological significance.

SYMPOSIA SCHEDULE:

14:45 – 15:00
Model-based approaches towards assessing Dynamic Connectivity
Martin Lindquist, Johns Hopkins University School of Public Health, Baltimore, MD, United States

15:00 – 15:15
Separable Spatiotemporal Models of Functional Connectivity with Nonstationary Autocorrelation
Manjari Narayan, Stanford University, Palo Alto, CA, United States

15:15 – 15:30
Neural and non-neural correlates of time-varying resting-state functional connectivity
Xiao Liu, Pennsylvania State University, State College, PA, United States

15:45 – 16:00
Questions and Answers

Movies in the Magnet: Emerging themes from naturalistic viewing studies in fMRI

Room: Summit 2
Organizers:
Tamara Vanderwal, Yale University, New Haven, CT, United States

Christine Guo, QIMR Berghofer, Herston, Queensland, Australia

In addition to an ongoing interest in driving the brain in complex, dynamic ways, the need to decrease head motion and to collect data over a meaningful scan duration is currently combining with a burgeoning interest in detecting individual differences in the brain to further propel the use of naturalistic paradigms in neuroimaging. The learning outcomes for this symposium provide foundational background information about this emerging subfield (e.g., test-retest reliability, head motion statistics), orient researchers to ongoing work and resources applicable to a broad range of research interests, and set the stage for the next wave of studies by describing novel analytic approaches.

SYMPOSIA SCHEDULE:

14:45 – 14:55
Anterior hippocampal connectivity during natural memory retrieval predicts recall confidence
Christine Cong Guo, QIMR Berghofer Medical Research Institute, Queensland, Australia

14:55 – 15:05
Individual differences in functional connectivity during movie watching
Tamara Vanderwal, Yale Child Study Center, New Haven, CT, United States

15:05 – 15:15
Memory and hippocampal functional connectivity during early childhood
Fengji Geng, University of Maryland, College Park, MD, United States

15:15 – 15:25
Bringing naturalistic viewing to scale in human and nonhuman populations
Michael Milham, Child Mind Institute, New York, NY, United States

15:25 – 15:35
Naturalistic paradigms as a bridge between task-based and resting-state fMRI
Simon B. Eickhoff, Institute of Neuroscience and Medicine, Brain & Behaviour (INM-7), Research Centre Jülich, Jülich, Germany

15:35 – 15:45

Relating behavioral phenotypes to inter-brain synchrony during a naturalistic task

Emily Finn, National Institute of Mental Health, Washington, DC, United States

15:45 – 16:00

Questions and Answers

Transcranial Low Intensity Focused Ultrasound: A novel approach to non-invasive brain mapping

Room: Summit 1
Organizer:
Gwenaelle Douaud, FMRIB, Oxford University, Oxford, United Kingdom

Neuromodulation is a crucial complement to neuroimaging approaches in understanding the relationship between brain and behavior. While established methodologies for neuromodulations do exist, transcranial Low Intensity Focused Ultrasound (LIFU) has the potential for adding new key capacities for brain mapping, as demonstrated by the recent emergence of a critical mass of scientists employing it in the context of brain mapping, in both the healthy and pathological brain. Transcranial LIFU is a non-surgical low-energy technique for safely inducing transient plasticity in sub-cortical and cortical areas with high spatial resolution and adjustable focus. LIFU can be used for probing function in individual regions including areas that fall beyond the reach of current neurostimulatory techniques such as ventral prefrontal cortices, the medial temporal lobe, and deep nuclei such as thalamus. The excitatory and inhibitory neuromodulatory effects of LIFU can also be used to assess network function connectivity, particularly when employed in conjunction with neuroimaging techniques (e.g., fMRI, EEG). Furthermore, this technique might also be used for modulating myelinated nerves/white matter tract transmission, as well as modulating neurotransmission. Finally, preliminary data suggest that LIFU can also be employed, in the clinical context, as a neurorestorative approach. As the above suggests, it is an early and exciting time in the field of sonic neurostimulation for brain mapping, which is the perfect time to host a group discussion, as a symposium at OHMB, aimed at demonstrating and bringing to a wider audience the current approaches, challenges, and future directions for this technology as a tool for neuroscience research and brain mapping and potential clinical applications.

SYMPOSIA SCHEDULE:

14:45 – 15:00

Noninvasive ultrasound-based neuromodulation in subcortical structures in vivo

Elisa Konofagou, Columbia University, New York, NY, United States

15:00 – 15:15

Transcranial focused ultrasound for cortical and sub-cortical human neuromodulation

Wynn Legon, University of Virginia, Charlottesville, VA, United States

15:15 – 15:30

Non-invasive regional brain stimulation using focused ultrasound: From small animals to humans

Seung-Schik Yoo, Harvard Medical School, Brigham and Women's Hospital, Boston, MA, United States

15:30 – 15:45

Thalamic Low Intensity Focused Ultrasound as an approach to recover consciousness in coma recovery

Martin Monti, UCLA, Los Angeles, CA, United States

15:45 – 16:00

Questions and Answers

Evolving perspectives on neurohormonal modulation of social-emotional networks

Room: 324-326
Organizers:
Benjamin Becker, University of Electronic Science & Technology of China, Chengdu, China

Richard Bethlehem, Autism Research Centre, Department of Psychiatry, University of Cambridge, Cambridge, United Kingdom

Network perspectives on brain function have revolutionized our understanding of cognitive and emotional behavior. During the last decade it has become increasingly clear that social-emotional behaviors emerge from an interplay between evolutionary highly conserved brain regions, that variations in these networks shape social-emotional behavior and that their dysregulation contributes considerably to social-emotional deficits in mental disorders.

Converging evidence suggests that neurohormones such as oxytocin regulate regional-specific activity in core nodes within these conserved networks, with accumulating evidence suggesting particularly strong modulatory influences on the synchronicity between neural systems. Evidence is growing rapidly for modulatory influences of oxytocin on the network level from both animal models and human studies that combine oxytocin administration in healthy subjects and patient populations with functional neuroimaging. However, overarching perspectives that integrate oxytocin's regulatory effects on the network level with its physiological properties, behavioral effects and interactions with personal and contextual factors are currently missing.

With the rapid growth of exciting findings on oxytocin's modulation of social-emotional behavior across species, and initial clinical trials indicating that targeting the oxytocinergic system might

represent an innovative strategy to normalize social-emotional deficits in mental disorders, it is now an opportune time to critically evaluate how we can progress to a synergistic framework which integrates findings from molecular to network levels. Such a framework could help to facilitate the translation of oxytocin research into its clinical application as an innovative strategy to target social-emotional dysfunctions in mental disorders.

SYMPOSIA SCHEDULE:

14:45 – 15:00
Oxytocin and social salience networks
Keith Kendrick, UESTC, Chengdu, Sichuan, China

15:00 – 15:15
Neuromodulatory effects of intranasal oxytocin on task-dependent prefrontal cortex functional connectivity
René Hurlemann, University of Bonn, Bonn, Germany

15:15 – 15:30
Intrinsic network modulation of intranasal oxytocin in humans
Richard Bethlehem, Autism Research Centre, Department of Psychiatry, University of Cambridge, Cambridge, United Kingdom

15:30 – 15:45
Mapping the oxytocin networks in rhesus macaques: implications for clinical translation
Ning Liu, Chinese Academy of Sciences – Institute of Biophysics, Beijing, China

15:45 – 16:00
Questions and Answers

16:00 – 16:15
BREAK

KEYNOTE LECTURE

16:15 – 17:00
Hall 405-406
Uncovering neurodevelopmental specialization of neurocognitive processes using multimodal neuroimaging
Beatriz Luna, Ph.D., Staunton Professor of Psychiatry and Pediatrics Professor of Psychology, University of Pittsburgh, Pittsburgh, PA, United States

Neurocognitive development is underlied by specialization of existing brain processes across a wide variety of domains, including stabilization of brain function, modification of structural and functional connectivity, and dopaminergic processing. Evidence for neurodevelopmental specialization will be presented through current findings using fMRI, DTI, MEG, and PET.

Annual Event of Chinese Young Scholars for Human Brain Mapping

17:00 – 19:00
Room: 324-326

The 2018 Annual Event of Chinese Young Scholars for Human Brain Mapping is an event supported by the OHBM China Chapter and the OHBM Communications Committee. The goal of the event is to bring together Chinese researchers with diverse backgrounds from the OHBM community to communicate, discuss, and collaborate on cutting edge neuroscience research topics and methods. Furthermore, young scholars could learn the career paths of senior researchers and seek advice for their own professional development.

17:00 – 17:50: Keynote Speeches
    Jia-Hong Gao and Xi-Nian Zuo
17:50 – 18:30: Panel discussion
    Jia-Hong Gao, Xi-Nian Zuo, Juan (Helen) Zhou,
    Ning Liu, and Chao-Gan Yan
18:30 – 19:00: Academic Networking
19:30 – 21:30: Dinner (Optional)

Free registration is now open: Please register your interest in attending this event with Xiao Chen through website or email: **chenxiao@psych.ac.cn** or **http://rfmri.org/OHBM2018CN**

CLUB NIGHT

20:00 – 2:00
Zouk
Address: 3C River Valley Road, The Cannery,
Singapore 179022

Since it opened its doors, Zouk has delivered an innovative and progressive clubbing environment, introducing Singapore to the world's freshest dance music. As the pioneer clubbing institution in Singapore, Zouk was the first club to introduce House music, bravely steering away from the popular trend of Top 40s and retro playlists, establishing itself as a trailblazer in the industry. Since then, Zouk has played host to hundreds of top DJs and artists. The venue is located within Clarke Quay's Cannery Block and is accessible by train, bus, and taxi. Zouk is 5-10 minutes from the convention centre. We will have a variety of food available for purchase from various food trucks

PLEASE NOTE: You must have your ticket or your name badge or you will not be admitted.

Additional guest tickets are $50.00 and must be purchased at the conference registration desk.

MORNING SYMPOSIA
8:00 – 9:15

Evolving perspectives on integrating task-based and rest-based models of brain function

Hall 405-406
Organizers:
Keith Kendrick, UESTC, Chengdu, Sichuan, China

Bharat Biswal, Newark College of Engineering, Newark, NJ, United States

Driven by the discovery of task-based fMRI and the advent of resting state fMRI, our knowledge of the functional integration and segregation of brain networks has developed at an incredible speed. However, with the growth of the functional neuroimaging community and the development of increasingly complex modeling approaches several specialized subfields have emerged leading to separate rather than integrated perspectives on human brain function. Despite increasing efforts to employ multi-modal imaging by e.g. integrating structural and functional networks and indirect functional characterization of large-scale functional networks by means of meta-analytic mapping, surprisingly few studies have directly compared task-related and resting state functional MRI indices. In particular, the extent to which they are related (or different) and can provide distinct but complimentary information during pathology or following pharmacological or other modulations remains unclear.

It is time to re-integrate task and resting-state approaches for investigating neural networks and explore both how they differ and can also be combined to help provide a more holistic understanding of human brain function. We will illustrate this by considering both psychiatric disorders and particularly the effects of psychoactive substances (oxytocin, ketamine) or neurofeedback training using real time fMRI on neural networks.

SYMPOSIA SCHEDULE:
8:00 – 8:15
TASK vs REST
Bharat Biswal, Newark College of Engineering, Newark, NJ, United States

8:15 – 8:30
What is the role of perfusion imaging in pharmacological fMRI studies?
Mitul Mehta, King's College London, London, United Kingdom

8:30 – 8:45
Convergent and divergent changes of real-time fMRI Neurofeedback-associated neural regulation across task- and resting state indices
Benjamin Becker, University of Electronic Science & Technology of China, Chengdu, Sichuan, China

8:45 – 9:00
What we have learned about the effects of neuropeptides on neural networks from task and resting-state fMRI?
Keith Kendrick, UESTC, Chengdu, Sichuan, China

9:00 – 9:15
Questions and Answers

Progression from the mean: neuroimaging methods for modelling population variability and heterogeneity

Room: Summit 1
Organizer:
James Cole, Kings College London, London, United Kingdom

This symposium will highlight the importance of modelling population variability, within-group heterogeneity and individual differences when using neuroimaging data. This will be achieved by showcasing the latest data from methodological developments in the area. Much current neuroimaging research still focuses on characterising group differences using the mean and standard deviation of derived measures. Crucially, this canonical approach assumes homogeneity between members of experimental groups. This assumption is not valid for the majority of brain diseases and is likely not valid for the general population or healthy control groups. This potentially explains why quantitative neuroimaging is yet to have much clinical impact, as diseases are typically highly complex and heterogeneous, with few individuals actually resembling the 'average'. This symposium focuses on the application of different approaches to overcoming this issue, hoping to direct the progression of the neuroimaging field away from simply using the mean. The value in modelling individual differences in order to make personalised predictions, aligned with moves towards precision medicine, will be highlighted. The topic is particularly timely as the increasing amount of neuroimaging data becoming available now allows the novel application of multivariate analysis methods. For the first time, we have the opportunity to define 'normal' variability in brain structure and function in the population, thanks to initiatives such as the UK Biobank. However, unless these methodological approaches are encouraged, developed and more widely adopted, our field's dependency on measures of central tendency may remain entrenched and the chance to translate neuroimaging into clinical practice could be missed.

SYMPOSIA SCHEDULE:
8:00 – 8:15
The central tendency dependency: problems and potential solutions for neuroimaging research
James Cole, King's College London, London, United Kingdom

8:15 – 8:30

Identifying neurodegenerative disease subtypes and their temporal progression using Subtype and Stage Inference

Alexandra Young, University College London, London, United Kingdom

8:30 – 8:45

Brain Aging Heterogeneity with Machine Learning: dimensional multi-site neuroimaging reference system

Mohamad Habes, University of Pennsylvania, Philadelphia, PA, United States

8:45 – 9:00

Structural Brain Alterations in Depression Based on Individual Deviations from Normative Age-Related Patterns of Brain Structure

Lianne Schmaal, University of Melbourne, Melbourne, Australia

9:00 – 9:15

Questions and Answers

Multimodal imaging of electroconvulsive therapy at the human system level

Room: Summit 2

Organizer:

Indira Tendolkar, Donders Institute for Brain, Cognition and Behavior, Nijmegen, Netherlands

Unipolar and bipolar Major Depressive Disorder (MDD) is a leading cause of disability worldwide. Despite fifty years of intensive research on its underlying pathophysiology, treatment options are still unsatisfactory, leading to severe disability and chronicity with large socio-economic consequences. Currently, one third of all MDD patients suffer from a treatment-resistant form of depression. Notably, this group of patients consumes almost 50% of the total budget that arises for treatment costs (Murray and Lopez, 1997). Hence, it is of particular importance to investigate the neurobiological mechanisms of actions of those treatments that do have the best effect in these cases. While knowledge on symptoms and treatment guidelines of MDD forms part of academic teaching programmes in medical schools and postgraduate courses (e.g. in molecular epidemiology, neurosciences, and concepts of personalized medicine), comparatively limited attention has been paid to the underlying mechanisms of the most potent treatment, i.e. electroconvulsive therapy in research and teaching programs. However mechanistic effects of ECT as well as the biomarkers that predict the response have to be understood to develop new treatments and treatment guidelines.

SYMPOSIA SCHEDULE:

8:00 – 8:20

Longitudinal Structural Covariance Associated with Antidepressant Electroconvulsive Therapy Response

Benjamin Wade, UCLA, Los Angeles, CA, United States

8:20 – 8:40

Volume of the human hippocampus and clinical response following electroconvulsive therapy

Philip van Eijndhoven, Donders Institute for Brain, Cognition and Behavior, Nijmegen, Netherlands

8:40 – 9:00

Electroconvulsive therapy affects key regions implicated in depression: A review of longitudinal neuroimaging studies

Peter Mulders, Donders Institute for Brain, Cognition and Behavior, Nijmegen, Netherlands

9:00 – 9:15

Questions and Answers

9:15 – 9:30

BREAK

KEYNOTE LECTURE

9:30 – 10:15

Hall 405-406

Neurodevelopment, self-regulation, and value

Leah Somerville, PhD, Harvard University, Cambridge, USA

My talk will feature new work revealing how the adolescent brain is uniquely "tuned" to motivated cues, which impacts adolescents' inhibitory control and decision making. Ultimately, the aims of this work are threefold: to bolster fundamental understanding of human neurodevelopment in the second decade of life, to inform relationships between circuit-level brain function and human behavioral outcomes more generally, and to gain insight into mechanisms of health risks that emerge during adolescence.

10:15 – 10:30

BREAK

ORAL SESSIONS

10:30 – 11:45

Oral session presentations are chosen by the Program Committee from submitted abstracts using criteria of quality and timeliness; a wide spectrum of investigation is represented. Authors listed are the presenting authors, a full list of authors can be found in the Abstract / Poster Listing Booklet (**www.humanbrainmapping.org/2018Posters)**, in the E-poster search (**http://ww5.aievolution.com/hbm1801/**) or in the mobile app.

Modeling and Analysis Methods II

Hall 405-406
Chairs:
Jessica Schrouff, University College London, London, United Kingdom

Thomas Yeo, National University of Singapore, Singapore, Singapore

10:30 – 10:42
2654: Validity of summary statistics-based mixed-effects group fMRI
Camille Maumet, INRIA, Rennes, France

10:42 – 10:54
2434: Visibility graphs for fMRI data: multiplex temporal graphs and their spatiotemporal modulations
Daniele Marinazzo, Ghent University, Ghent, Belgium

10:54 – 11:06
2510: A probabilistic method for modelling cortical layer composition in sub-voxel resolution
Omri Tomer, Tel Aviv University, Tel Aviv, Israel

11:06 – 11:18
2352: Spontaneous reconfiguration of waves in a model of large-scale brain dynamics
James Roberts, QIMR Berghofer Medical Research Institute, Herston, QLD, Australia

11:18 – 11:32
2512: ASD Brain Biomarker Detection on fMRI Images by Analyzing Deep Neural Network (DNN)
Xiaoxiao Li, Yale University, Stamford, CT, United States

11:32 – 11:45
2471: A generative model for inferring whole-brain effective connectivity
Stefan Frässle, Translational Neuromodeling Unit, Zurich, Switzerland

Disorders of the Nervous System - Psychiatry

Room: Summit 1
Chairs:
Indira Tendolkar, Donders Institute for Brain, Cognition and Behavior, Nijmegen, Netherlands

Shaozheng Qin, Beijing Normal University (BNU), Palo Alto, United States

10:30 – 10:42
1058: Down-regulation activity patterns of smoking cue reactivity prevents smoking behaviors
Junjie Bu, USTC, Hefei, China

10:42 – 10:54
2706: Neuroimaging Correlates of Maternal Smoking Later in Life: Analysis of the UK Biobank Cohort
Lauren Salminen, University of Southern California, Marina del Rey, United States

10:54 – 11:06
1079: Amygdala cue-reactivity encodes the shift from 'liking' to 'wanting' in nicotine use disorder
Amelie Haugg, Psychiatric University Hospital Zurich, Zurich, Switzerland

11:06 – 11:18
1425: Different impaired speed of brain FC, GM and SNP in schizophrenic progress: a multimodal study
Na Luo, Institute of Automation, Chinese Academy of Sciences, Beijing, China

11:18 – 11:30
1179: Reproducible Functional Connectivity Alterations are Associated with Autism Spectrum Disorder
Juergen Dukart, F.Hoffmann-La Roche, Basel Switzerland

11:30 – 11:42
1340: Cross-disorder connectome examination reveals generally vulnerable connections of the human brain
Siemon de Lange, UMC Utrecht, Utrecht, Netherlands

Language

Room: 324-325
Chair:
Annabel Shen-Hsing Chen, Nanyang Technological University, Singapore

10:30 – 10:42
1442: Enhanced function of typical hubs supports near-normal language ability after early focal lesions
Anjali Raja Beharelle, SNS Lab, University of Zurich, Zurich, Switzerland

10:42 – 10:54

2092: Dissociation of spoken and written language coding neurons in the Visual Word Form Area

Chotiga Pattamadilok, Aix-Marseille University, Aix-en-Provence, France

10:54 – 11:06

2108: High Gamma Electrocorticography in Superior Temporal Gyrus Represents Words during Natural Speech

Yizhen Zhang, Purdue University, West Lafayette, IN, United States

11:06 – 11:18

2086: Objective language mapping with TMS for functional parcellation of Broca's region

Katrin Sakreida, University Hospital RWTH Aachen, Aachen, Germany

11:18 – 11:30

2426: Alternative Metrics for Functional Connectivity in the Context of Machine Learning Classification

Rosaleena Mohanty, University of Wisconsin-Madison, Madison, United States

11:30 – 11:42

2102: Reorganization of resting-state networks while reading and listening: a developmental perspective

Stephen Bailey, Vanderbilt University, United States

Learning and Memory

Room: Summit 2
Chairs:
Gui Xue, Beijing Normal University, China

JuLynn Ong, Duke-NUS Medical School

10:30 – 10:42

2127: Dynamic integration of large-scale brain network predicts incidental memory encoding performance

Ruedeerat Keerativittayayut, Kochi University of Technology, Kochi, Japan

10:42 – 10:54

2128: Measuring medial prefrontal glutamate/glutamine concentration during episodic memory formation

Indira Tendolkar, Donders Institute for Brain, Cognition and Behavior, Nijmegen, Netherlands

10:54 – 11:06

1369: Thinning of CA1-Striatum Pyramidale Linked to Episodic Memory Impairment in Parkinson's disease

Christian La, Stanford University, Palo Alto, CA, United States

11:06 – 11:18

2126: On learning new objects and their names: how symbolic categorization shapes neural representations

Simone Viganò, University of Trento, Rovereto, Trento, Italy

11:20 – 11:32

2158: fMRI decoding of working memory representations of individual and grouped tactile stimuli

Lisa Velenosi, Freie Universität Berlin, Berlin, Germany

11:32 – 11:45

2301: Unraveling the Relation between Functional Connectivity, Working Memory Performance and Age

Kaustubh Patil, Forschungszentrum Jülich, Jülich, Germany

11:45 – 12:45
LUNCH ON OWN

Siemens Healthineers Lunch Symposium

Constantly exceeding the possible. Pioneering MRI
12:00 – 13:30
Room: 324-326

OPEN SCIENCE

12:30 – 14:30
Diffusion methods
Room: 311
- MRtrix, Advanced tools for the analysis of diffusion MRI data, Peter McColgan
- Microstructure Diffusion Toolbox (MDT), Alard Roebroeck

SOFTWARE DEMONSTRATIONS

12:45 – 14:45
Hall 401-403

2053: BrainSuite Workflow and Quality Control System
David Shattuck, UCLA, Los Angeles, CA, United States

2299: Pattern Recognition for Neuroimaging Toolbox (PRoNTo) v2.1
Tong Wu, University College London, London, United Kingdom

2011: Pybids: Python tools for manipulation and analysis of BIDS datasets
Tal Yarkoni, University of Texas at Austin, Austin, TX, United States

2575: Reconstructing unthresholded statistical maps from peak coordinates using deep neural networks
Krzysztof Gorgolewski, Stanford University, Stanford, CA, United States

2318: Mipy: An Open-Source Framework to improve reproducibility in Brain Microstructure Imaging

Rutger Fick, INRIA, Sophia Antipolis, France

1998: LORIS Multimodal platform for data sharing and visualization: MNI Open iEEG Atlas

Christine Rogers, McGill Centre for Integrative Neuroscience, Montreal Neurological Institute, Montreal, Canada

2044: FreeROI: A Comprehensive Toolbox for Region of Interest Delineation and Edit

Xiayu Chen, State Key Laboratory of Cognitive Neuroscience and Learning & IDG/McGovern Institute for Brain Research, Faculty of Psychology, Beijing Normal University, Beijing, China

POSTER SESSION

12:45 – 14:45
Hall 401-103
Poster Numbers #1000-2962
Even number posters will present from 12:45 – 13:45.
Odd number posters will present 13:45 - 14:45.
All poster categories will be presented today.

See complete list of poster categories and poster hall layout on pages 56-57.

AFTERNOON SYMPOSIUM

14:45 – 16:00

Reproducibility in functional MRI: validation, improvement and future

Hall 405-406
Organizers:
Chao-Gan Yan, Institute of Psychology, Chinese Academy of Sciences, Beijing, China

Krzysztof Gorgolewski, Stanford University, Stanford, CA, United States

Anisha Keshavan, University of Washington, Seattle, WA, United States

Jean-Baptiste Poline, McGill University, Montréal, Quebec, Canada and University of California at Berkeley, Berkeley, CA, United States

Recently, researchers have started to validate the reproducibility of fMRI studies with real data, which revealed a discomforting picture. Although fMRI measures attained moderate reliabilities, they replicated poorly in distinct datasets, especially in small sample size studies. Practice of fMRI studies, including design, sample size, analysis/workflow should be improved. We will present our work towards the improved practice in this symposium.

SYMPOSIA SCHEDULE:

14:45 – 15:00
Reproducibility of R-fMRI metrics on the impact of different strategies for multiple comparison correction and sample sizes
Chao-Gan Yan, Institute of Psychology, Chinese Academy of Sciences, Beijing, China

15:00 – 15:15
Reproducibility and replicability: a practical approach
Krzysztof Gorgolewski, Stanford University, Stanford, CA, United States

15:15 – 15:30
The problems associated with the use of p-values in brain imaging and their effects on reproducibility
Jean-Baptiste Poline, McGill University, Montréal, Quebec, Canada and University of California at Berkeley, Berkeley, CA, United States

15:30 – 15:45
Web-based neuroimaging tools for reproducible and collaborative research
Anisha Keshavan, University of Washington, Seattle, WA, United States

15:45 – 16:00
Questions and Answers

Neurobiology of Exercise: What Neuroimaging tells us about the underlying Molecular Mechanisms

Room: 324-325
Organizers:
Henning Boecker, University Hospital Bonn, Bonn, Germany

Emrah Duzel, Institute of Cognitive Neurology and Dementia Research, Otto-von-Guericke University, Magdeburg, Germany

This symposium brings together internationally renowned experts in the field of exercise science and neuroimaging. The symposium targets on molecular mechanisms promoted by exercise. A deeper understanding of the underlying molecular mechanisms of exercise in humans, that promote structural and functional plasticity in mesial temporal lobe structures (and beyond) is an important prerequisite for tailored interventions with either preventative or disease-modifying intentions, for example in the setting of neurodegenerative disease conditions. Equally, advancing the understanding exercise-induced neurotransmitter effects will be important for future preventative and disease modifying interventions, for example in affective disorders, Parkinson's disease, and chronic pain states.

SYMPOSIA SCHEDULE:

14:45 – 15:00

Neurotrophic Factors and Structural and Functional Neuroplasticity in Exercise Science

Michelle Voss, Health, Brain, and Cognition Laboratory, Department of Psychological and Brain Sciences, The University of Iowa, Iowa, IA, United States

15:00 – 15:15

Vascular Neuroplasticity induced by Exercise Interventions

Emrah Duzel, Institute of Cognitive Neurology and Dementia Research, Otto-von-Guericke University, Magdeburg, Germany

15:15 – 15:30

The Dopaminergic System and Exercise

Carl-Johan Boraxbekk, Danish Research Center for Magnetic Research (DRCMR), Copenhagen, Denmark

15:30 – 15:45

The Opioidergic System and Exercise

Henning Boecker, DZNE Bonn, Bonn, Germany

15:45 – 16:00

Questions and Answers

Novel multimodal approaches for precision brain stimulation

Room: Summit 2

Organizers:

Christian Windischberger, Medical University of Vienna, Vienna, Austria

Hartwig Siebner, Danish Research Center for Magnetic Resonance, Copenhagen University Hospital Hvidovre, Hvidovre, Denmark

Transcranial magnetic stimulation (TMS) offers the unique possibility for targeted, non-invasive interaction with cerebral circuits using pulsed magnetic fields. While the exact mechanisms of action are not fully understood, highfrequency repetitive TMS of left dorsolateral prefrontal cortex is FDA-approved as interventional therapy of treatment-resistant depression and has been applied in a number of other brain disorders. Moreover, TMS has been used as neuroscientific interventional tool to induce a well-defined spatio-temporal modulation of neural activity in order to reveal causal interactions in functional brain networks. Combining TMS with other brain mapping modalities is challenging, but yields detailed information about the neurophysiological effects of TMS on the stimulated brain circuits. Recent years have witnessed substantial progress in merging TMS with advanced human brain mapping techniques. In this symposium, we will highlight several multimodal approaches where TMS is combined with EEG, magnetic resonance spectroscopy (MRS) and functional magnetic resonance imaging (fMRI).

SYMPOSIA SCHEDULE:

14:45 – 15:00

Comparing the results of field modelling to physiological measurements and MR-based current flow measurements

Axel Thielscher, Danish Research Centre for Magnetic Resonance, Copenhagen University Hospital Hvidovre, Hvidovre, Denmark

15:00 – 15:15

Linking brain stimulation and metabolites

Charlotte Stagg, University of Oxford, Oxford, United Kingdom

15:15 – 15:30

The state is the art: EEG-informed TMS to target cortical states

Hartwig Siebner, Danish Research Center for Magnetic Resonance, Copenhagen University Hospital Hvidovre, Hvidovre, Denmark

15:30 – 15:45

Concurrent TMS-fMRI for individual dose-response assessment

Christian Windischberger, Medical University of Vienna, Vienna, Austria

15:45 – 16:00

Questions and Answers

16:00 – 16:15

BREAK

Modelling complex neuroimaging data: Practical approaches to longitudinal and dependent data

Room: Summit 1

Organizers:

Dylan Nielson, NIMH, Bethesda, MD, United States

Thomas Nichols, University of Oxford, Oxford, United Kingdom

There has been a steady growth in the use of designs that induce complex dependencies in group-level modelling of neuroimaging data. Longitudinal studies, rare early in brain imaging's history, are becoming more prevalent, especially studies with 3 or more time points. Data with related individuals, once only found in the occasional twin study, are now prevalent thanks to the Human Connectome Project (HCP), which uses a twins+siblings design. And stratified sampling, a staple of survey methodology, is integral to the Adolescent Brain Cognitive Development (ABCD) Study, where subjects are sampled within schools, requires modelling of random school effect. All of these designs induce dependence between scans and/or subjects in a way that violates the usual independence assumption. While the standard software packages can account for such dependence in rudimentary ways (e.g. for only 2 scans per subject; or by assuming globally homogeneous repeated measures correlation), they struggle to model arbitrary dependence.

In this workshop we will highlight a number of tools facilitating complex statistical modeling of neuroimaging data. Neuropointilist allows changing neural processes to be modeled as part of complex systems interacting with other change processes with voxel-level structural equation modeling. The Nonparametric Neuroimaging Genetic Analysis framework provides a framework for fast, voxel-level modeling while assessing heritability directly or controlling for its effect on other factors of interest. Mixed Effects for Large Datasets is a robust approach for voxel-level nonparametric hypothesis testing while controlling for sources at multiple levels of the analysis (i.e., subject and item level random effects). Finally, we will discuss bayesian hierarchical modeling as an alternative to moving null hypothesis significance testing that avoids sharp and arbitrary thresholding and promotes complete and transparent reporting of results.

SYMPOSIA SCHEDULE:

14:45 – 15:00

Neuropointillist: Bringing the interpretive power of structural equation models to longitudinal neuroimaging data

Tara Madhyastha, University of Washington, Seattle, WA, United States

15:00 – 15:15

Modeling genetically-induced dependence in studies of families and "unrelated" individuals.

Habib Ganjgahi, University of Oxford, Oxford, United Kingdom

15:15 – 15:30

Voxel level control of item as fixed-effect fallacy with MELD

Dylan Nielson, NIMH, Bethesda, MD, United States

15:30 – 15:45

Simultaneously Handling Multiple Comparisons and Gaining Inference Efficiency in Neuroimaging

Gang Chen, National Institutes of Health, Bethesda, MD, United States

15:45 – 16:00

Questions and Answers

16:00 – 16:15
BREAK

16:15 – 17:00
Hall 405-406
Topographic principles of macroscale cortical connectivity
Daniel S. Margulies, PhD, CNRS UMR 7225, Institute du Cerveau et de la Moelle épinière, Paris, France

What determines the spatial arrangement of distinct areas of the cerebral cortex? This presentation will describe various features of a principal gradient in cortical connectivity that spans between primary sensory/motor areas and higher-order transmodal association regions, and discuss the implications of this organizational principle for cortical function.

17:00 – 17:15
BREAK

General Assembly & Feedback Forum

Hall 405-406
The General Assembly & Feedback Forum is the top source for the latest breaking news and commentary on issues impacting the neuroimaging community and your member organization. It is also an opportunity for you to voice your opinions and questions to the Council — which helps shape future agendas. The new elected leadership will be announced as well as dates and venues for future Annual Meetings. Use the ARS to submit your questions: Visit **https://gmp3.cnf.io/**

MORNING SYMPOSIA
8:00 – 9:15

A spotlight on network hubs: cutting-edge analyses and clinical applications

Hall 405-406
Organizers:
Christophe Grova, PERFORM Center – Concordia University, Montreal, Quebec, Canada

Boris Bernhardt, McGill University, Montreal, Quebec, Canada

Our community has contributed to a shift in neuroscientific inquiry, which emphasizes the relevance of studying large-scale networks to understand the organization of the healthy and diseased brain. The purpose of this symposium is to shed light on hubs, crucial building blocks of those networks that ensure efficient communication between the individual elements and sub-modules of the network. Given their relevance in maintaining network stability, the identification of hubs is crucial for our understanding of network architecture and their mapping may provide a synoptic view on macroscale structural as well as functional organization. Moreover, numerous studies have suggested large-scale network reorganization in disease and, in particular, high susceptibility of hub regions to pathology.

The symposium will shed light on the importance of hubs for overall brain network topology and their vulnerability in disease. We will provide an update on state-of-the-art methodologies to identify hubs and cover work that supports their significant clinical relevance.

Our first speaker (Shi Gu) will cover controllability analysis on structural networks, a novel framework to simulate functional dynamics from a diffusion MRI derived connectome and to identify hubs that can steer whole-brain dynamics in healthy brain function and traumatic brain injury. Our second speaker (Işık Karahanoğlu) will overview recent approaches fMRI analyses to construct spatially and temporally overlapping brain networks and to situate core nodes within these representations. Thirdly, Kangjoo Lee will present her k-hubness framework, a methodology able to identify hubs, the underlying networks associated to each hub and the analysis of hub typical reorganizations for patients with epileptic lesions. Finally, Nicolas Crossley will overview his work on integrating meta-analytical techniques with network centrality mapping, which supports a preferential susceptibility of hub regions across numerous clinical conditions. Our symposium will end with a discussion panel with our speakers and the audience on this important question: should we consider connector hub for clinical studies?

SYMPOSIA SCHEDULE:
8:00 – 8:15
Controllability Analysis on Structural Brain Networks
Shi Gu, University of Electronic Science and Technology of China, Chengdu, Sichuan, China

8:15 – 8:30
Time-resolved fMRI analysis reveals rich dynamics of large-scale brain networks in health and disease
Fikret Işık Karahanoğlu, Massachusetts General Hospital, Boston, MA, United States

8:30 – 8:45
SParsity-based Analysis of Reliable K-hubness (SPARK): A new analysis of individually reliable functional connector hubs and its application to epilepsy
Kangjoo Lee, McGill University, Montreal, Quebec, Canada

8:45 – 9:00
Testing the universality of hub vulnerability through meta-analysis
Nicolas Crossley, King's College London, London, United Kingdom

9:00 – 9:15
Questions and Answers

Good Noise in Neural Computation

Room: Summit 1
Organizer:
Pamela Douglas, UCF/UCLA, Los Angeles, CA, United States

New theories on power consumption and energy efficiency in the human brain suggest that noise is an essential part of neural computation. By filtering out noise from our data, we may be missing essential information related to both the healthy brain and in disease (e.g., epileptic seizures). Stochastic facilitation theory has played an important role in improving understanding of signal transmission in other domains, but has yet to be fully appreciated by the neuroimaging community. Here we will discuss the importance of understanding and modeling noise in our data across conventional data analysis techniques as well as in decoding models.

SYMPOSIA SCHEDULE:
8:00 – 8:15
Good Noise in the Human Brain
Pamela Douglas, UCF/UCLA, Los Angeles, CA, United States

8:15 – 8:30
Power Consumption in Neural Computation During Seizures
Biswa Sengupta, University of Cambridge, Cambridge, United Kingdom

8:30 – 8:45

The Importance of Noise in Decoding Models

Andrew Doyle, Montreal Neurological Institute, Montreal, Quebec, Canada

8:45 – 9:00

Modeling Noise and Individual Variation

Satrajit Ghosh, Massachusetts Institute of Technology, Cambridge, MA, United States

9:00 – 9:15

Questions and Answers

Mapping and Manipulating Neural Oscillations with NonInvasive Brain Stimulation

Room: Summit 2
Organizer:
Ines Violante, University of Surrey, Guildford, United Kingdom

Neuronal oscillations are believed to organize information processing and communication between brain structures. Mapping of brain oscillations with EEG and MEG demonstrated that they are ubiquitous throughout the brain, that particular oscillatory patterns are associated with specific cognitive functions, and that those patterns can be disturbed in states of disease. This link, however, remains correlative unless experimental manipulations of brain oscillations establish their causal contribution to brain function. In humans, this can be achieved by transcranial brain stimulation techniques, such as magnetic or alternating current stimulation (TMS/TACS). Alongside the raising interest in these techniques, there is a rousing debate about the neural effects they elicit, highlighting the timeliness of this topic. We will discuss recent landmark advances allowing to map immediate stimulation effects via concurrent EEG, MEG, or fMRI, but also to deliberately target specific oscillatory brain states in real-time. We will introduce novel techniques to the OHBM community that enable stimulation at unprecedented spatial and temporal precision. This symposium is organized around the work of four early-career researchers, developing novel and complementary approaches of mapping and manipulating brain oscillations in humans. The four talks will explore (1) real-time EEG-triggered TMS to study excitation/inhibition and synaptic plasticity, and TACS-MEG for neuronal entrainment, (2) real-time EEG-triggered TACS and auditory stimulation to interact with oscillations during sleep, (3) combined TACS-fMRI to map and manipulate large-scale cortical networks in healthy and injured brains, and (4) the novel use of temporally interfering electric fields to target deep brain structures.

SYMPOSIA SCHEDULE:

8:00 – 8:15

Combining transcranial brain stimulation with EEG/MEG to study the function of neuronal oscillations

Til Ole Bergmann, Eberhard Karls University of Tübingen, Tübingen, Germany

8:15 – 8:30

EEG feedback-controlled sleep stimulation approaches to establish the influence of sleep network dynamics on brain and body health

Caroline Lustenberger, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States

8:30 – 8:45

Mapping the effect of oscillatory transcranial electrical stimulation on brain function

Ines Violante, University of Surrey, Guildford, United Kingdom

8:45 – 9:00

Noninvasive Deep Brain Stimulation via Delivery of Temporally Interfering Electric Fields

Nir Grossman, Imperial College London, London, United Kingdom

9:00 – 9:15

Questions and Answers

9:15 – 9:30

BREAK

KEYNOTE LECTURE

9:30 – 10:15
Hall 405-406

Principles of wiring of the human connectome

Martijn van den Heuvel, PhD, Dutch Connectome Lab, Department of Complex Trait Genetics, Center for Neurogenomics and Cognitive Research, VU Amsterdam, Amsterdam, the Netherlands

10:15 – 10:30
BREAK

ORAL SESSIONS

10:30 – 11:45

Oral session presentations are chosen by the Program Committee from submitted abstracts using criteria of quality and timeliness; a wide spectrum of investigation is represented. Authors listed are the presenting authors, a full list of authors can be found in the Abstract / Poster Listing Booklet (**www.humanbrainmapping.org/2018Posters**), in the E-poster search (**http://ww5.aievolution.com/hbm1801/**) or in the mobile app.

Imaging Methods – Acquisition II

Hall 405-406
Chair:
Jaemin Shin, GE Healthcare

10:30 – 10:42
1917: Introducing automated ROI-based analysis for 3D-multivoxel magnetic resonance spectroscopy
Benjamin Spurny, Medical University of Vienna, Vienna, Austria

10:42 – 10:54
1789: Quiet, Distortion-Free Whole Brain T2-BOLD fMRI at 7T
Brian Burns, GE Healthcare, Menlo Park, United States

10:54 – 11:06
1892: A millisecond-scale real-time decoded neurofeedback system for alpha amplitude modulation
Gan Huang, Shenzhen University, Shenzhen China

11:06 – 11:18
1849: 400μm dMRI and tractography of early human visual system projections ex vivo using kT-dSTEAM at 9.4T
Alard Roebroeck, Maastricht University, Maastricht, Netherlands

11:18 – 11:30
1726: Acceleration of Golden Angle-Sampled FMRI Data with Data-Driven Priors and Low-Rank Constraints
Harry Mason, University of Oxford, Oxford, United Kingdom

11:30 – 11:42
1818: Mechanisms of negative BOLD responses
Pedro Valdes, Florida International University, Miami, FL, United States

Genetics

Room: Summit 1
Chairs:
Anqi Qiu, National University of Singapore, Singapore

Andre Altmann, University College London, London, United Kingdom

10:30 – 10:42
1551: The ENIGMA Cortical GWAS Collaboration identifies 81 genetic loci influencing cortical structure
Neda Jahanshad, University of Southern California, Los Angeles, CA, United States

10:42 – 10:54
1556: Genetics of brain structure and function: 3,144 GWAS from UK Biobank data
Fidel Alfaro Almagro, FMRIB Centre, WIN, University of Oxford, Oxford, United Kingdom

10:54 – 11:06
1092: Rare genetic events in sporadic Alzheimer's disease: a network propagation approach
Marzia Antonella Scelsi, University College London, London, United Kingdom

11:06 – 11:18
1564: Microstructural Heritability of the Corpus Callosum in Human
Chenxi Zhao, Beijing Normal University, Beijing, China

11:18 – 11:30
2457: Studying Genetic Impact on Resting State Connectivity Using Twin Brains
Arman Kulkarni, University of Wisconsin-Madison, Madison, WI, United States

11:30 – 11:42
2573: A Multivariate Brain Atlas of Genetic Depression Risk
Tim Hahn, University of Münster, Münster, Germany

Mapping Emotions and Social Function in the Brain

Room: 324-325
Chairs:
Pascal Molenberghs, The University of Melbourne, Melbourne, Australia

Shihui Han, School of Psychological and Cognitive Sciences, Peking University, Beijing, China

10:30 – 10:42
1534: Multilocus genetic profile scores account for gender differences in reactivity of the reward system
Anja Richter, Heidelberg University, Heidelberg, United States

10:42 – 10:54

1515: Bidirectional Modulation between Temporal Pole and Amygdala in Emotion Processing:A Stereo-EEG study

Saurabh Sonkusare, QIMR Berghofer, Brisbane, QLD, Australia

10:54 – 11:06

1501: Closed-loop amygdala neurofeedback using emotional faces

Ronald Sladky, University of Zurich, Zurich, Switzerland

11:06 – 11:18

1521: Emotions induced by naturalistic stimuli explain right hemisphere activity in an independent sample

Giada Lettieri, IMT School for Advanced Studies Lucca, Lucca, Italy

11:18 – 11:30

2417: Oxytocin Sex-dependently Increased Intrinsic Cooperation between Default and Salience Network

Fei Xin, University of Electronic Science and Technology of China, Chengdu, China

11:30 – 11:42

2625: Stomach-brain coupling reveals a novel, delayed connectivity resting-state network

Ignacio Rebollo, Cognitive Neuroscience Lab Ecole Normale Superieure, Paris, France

Perception, Attention, and Motor Behavior

Room: Summit 2
Chairs:
Marcello Massimini, University of Milan

Monica Rosenberg, Yale University, New Haven, CT, United States

10:30 – 10:42

2847: Learning Transferable and Generalizable Neural Encoding Models for Natural Vision

Haiguang Wen, Purdue University, West Lafayette, IN, United States

10:42 – 10:54

2766: Cortical sampling of visual space is modulated by both spatial and feature-based attention

Daan van Es, Vrije Universiteit Amsterdam, Amsterdam, Noord-Holland, Netherlands

10:54 – 11:06

2804: The brain's mind eye in absence of visual experience: topographic mapping of the soundscape-space

Shir Hofstetter, The Hebrew University, Jerusalem, Israel

11:06 – 11:18

2796: Electrocorticographic Responses to Vowel Sequences in Awake and Anesthetized States

Kirill Nourski, The University of Iowa, Iowa City, IA, United States

11:18 – 11:30

2849: Dynamic coordination in scene processing network

Zhengang Lu, University of Pennsylvania, Philadelphia, PA, United States

11:30 – 11:42

2710: The relationship between digit areas and myelin distribution in human primary somatosensory cortex

Sho Sugawara, National Institute for Physiological Sciences, Okazaki, Japan

LUNCH
12:00 – 12:45

OPEN SCIENCE

12:30 – 14:30
Machine learning & clustering
Room: 311
- Instantaneous Connectivity Parcellation (ICP) & Connectivity Gradients CONGRADS, Christian Beckmann
- NeuroData's MRI Graphs pipeline (NDMG), Eric Bridgeford
- A Python-based Hyperparameter Optimization Toolbox for Neural Networks PHOTON & PAC 2018 Winners announcement, Tim Hahn

SOFTWARE DEMONSTRATIONS

12:45 – 14:45
Hall 401-403

2024: MACS – a new SPM toolbox for model assessment, comparison and selection

Joram Soch, Bernstein Center for Computational Neuroscience, Berlin, Germany

2004: Collaborative curation of articles collections for meta-analyses in brain imaging: Brainspell-neo

Jean-Baptiste Poline, McGill University, Montreal, Quebec, Canada

2537: FMRell – a toolbox for the analysis of fMRI reliability

Juliane Frohner, Technische Universitat Dresden, Dresden, Germany

1900: This submission is a PDF, but the neuroscience papers of the future are not
Jan Freyberg, ASI Data Science, London, Greater London, United Kingdom

2041: GRETNA 2.0.0 and BrainNet Viewer 1.61: Toolkits for Brain Network Analysis and Visualization
Mingrui Xia, National Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, China

2535: Matrix-normal models for fMRI analysis
Michael Shvartsman, Princeton University, Princeton, NJ, United States

2026: BrainVerse: An Electronic Laboratory Notebook for Reproducible Neuroimaging Research
Smruti Padhy, Massachusetts Institute of Technology, Cambridge, MA, United States

POSTER SESSION

12:45 – 14:45
Hall 401-403
Poster Numbers #1000-2692
Even number posters will present from 12:45 – 13:45.
Odd number posters will present 13:45 - 14:45.
All poster categories will be presented today.

See complete list of poster categories and poster hall layout on pages 56-57.

CLOSING COMMENTS AND MEETING HIGHLIGHTS

14:45 – 16:00
Hall 405-406
During the closing, attendees will enjoy a presentation showcasing the highlights from the 2018 Annual Meeting. This year's presentation will be delivered by Alan C. Evans, McGill University, Montreal, Canada. The recipient of the People's Choice Awards will also be announced.

FAREWELL POSTER RECEPTION

16:00 – 17:30
Hall 401-403
Poster Numbers #1000-2962

OHBM 2018 MERIT ABSTRACT AWARDS

Congratulations to the following 2018 Merit Abstract Awardees

Fidel Alfaro Almagro	Ehsan Shokri Kojori	František Váša
Alexander Bowring	Yuan Chang Leong	Ashwati Vipin
Junjie Bu	Lucia Li	Benjamin Wade
Gabriel Castrillon	Wan Li	Lilian Weber
Matteo Visconti di Oleggio Castello	Xiaoxiao Li	Haiguang Wen
Stefan Frässle	Na Luo	Rujing Zha
Ravnoor Gill	Rosaleena Mohanty	Yizhen Zhang
Xavier Guell	Ignacio Rebollo	Chenxi Zhao
Amelie Haugg	Lauren Salminen	Ying-Qiu Zheng
Shir Hofstetter	Marzia Antonella Scelsi	

OHBM 2018 TRAVEL STIPEND RECIPIENTS

Congratulations to the following 2018 Travel Stipend Awardees

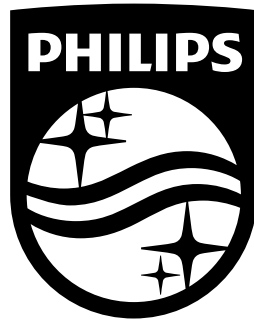|	
Andrea Sánchez Corzo	Ana Martinez
Raúl Rodríguez Cruces	Fernanda Ribeiro
Dong-Youl Kim	Bruno Hebling Vieira

DISCLOSURES

OHBM 2018 Disclosure Statements
The OHBM Program Committee reviewed all financial disclosures for speakers presenting at the Annual Meeting and determined there were no conflicts of interest.

ACKNOWLEDGEMENTS

2018 OHBM ANNUAL MEETING EXHIBITOR LAYOUT

Booth	Exhibitors
12	Artise Biomedical Co., Ltd.
25	Brain Lab, TAL Education Group
1 & 3	BESA GmbH
20	BIOPAC Systems
2	Brain Innovation bv
21 & 23	Brain Products GmbH
39	Brainnetome Atlas
22	BrainVision Analyzer 2
24	Compumedics
9	Current Designs, Inc.
32	Flywheel.io
40	g.tec Medical Engineering GmbH
26	Huron Digital Pathology
19	LOCALITE GmbH
33	Neuro Device Group
8	neuroCare Group GmbH
14	Neuroelectrics
4	NiRX Medical Technologies, LLC
10	NITRC
13	OBELAB
28 & 30	PHILIPS NEURO DIAGNOSTICS
11	Psychology Software Tools
27 & 29	Rogue Research, Inc.
31	Shenzhen Yingchi Technology Co.,Ltd
5	Soterix Medical, Inc.
24	YBRAIN INC
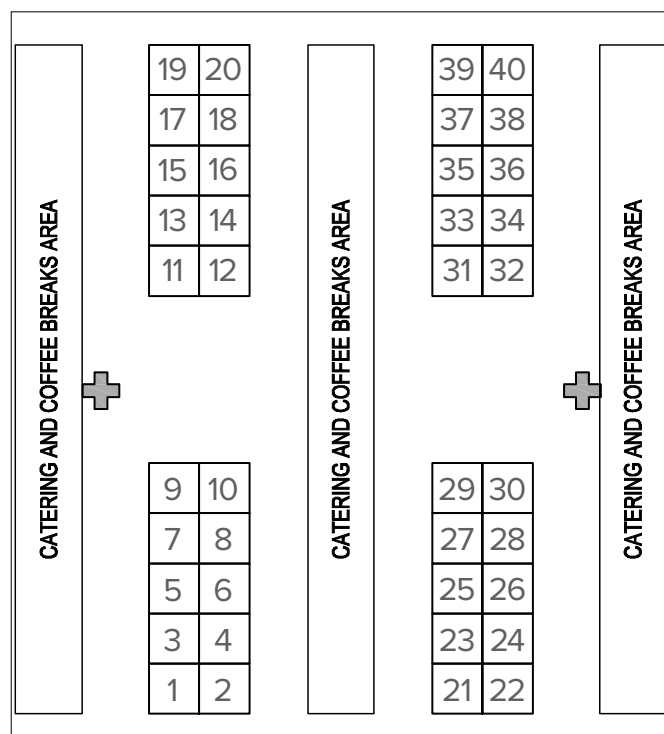
Exhibit Hall 401-403

Hours:
Tuesday, June 19
7:00 – 8:00 & 11:30 – 16:00

Wednesday, June 20
7:00 – 8:00 & 11:30 – 16:00

Thursday, June 21
7:00 – 8:00 & 11:30 – 17:30

Other Events in Exhibit Hall

Tuesday, June 19
Coffee Break: 7:00 – 8:00
Poster Session & Software Demos: 12:45 – 14:45

Wednesday, June 20
Coffee Break: 7:00 – 8:00
Poster Session & Software Demos: 12:45 – 14:45
Coffee & Dessert with exhibitors: 13:00 – 14:30

Thursday, June 21
Coffee Break: 7:00 – 8:00
Poster Session & Software Demos: 12:45 – 14:45
Poster Reception: 16:00 – 17:30

EXHIBITOR LIST

Artise Biomedical Co., Ltd.
Booth #12
Taiwan
886-910-615657
carolyhc@artisebio.com

At Artisebio, our vision is to embed neurotechnology into daily life. We offer smart wearables for biometric data to characterize human behavior and cognitive status, applying on healthcare, education, marketing, and more. We welcome collaboration opportunities to build advanced neural gears to spiking the future.

Brain Lab, TAL Education Group
Booth #25
China
www.100tal.com
86-15652265281
brainlab@100tal.com

The TAL education group in China, is the largest education group in the world. Brain Lab is a new attempt in the frontier field of science and technology for our group. We aimed at bringing neuroscience into the practice of education and producing high-quality scientific publications of educational neuroscience research.

BESA GmbH
Booths #1 & 3
Germany
www.besa.de
49 89 8980 9966
tobias.scherg@besa.de

BESA GmbH was founded in 1995 by Professor Michael Scherg. BESA Research is the leading commercial software package for EEG and MEG data analysis. Analysis options range from pre-processing to advanced source analysis, connectivity, and statistical analysis. BESA Research is used in more than 1500 universities and hospitals world-wide.

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Brainnetome Atlas
Booth #39
China
www.brainetome.org
brainnetome.atlas@nlpr.ia.ac.cn

The Brainnetome Center is a core department of Institute of Automation, Chinese Academy of Sciences(CASIA), which locates in Beijing. It is playing a leading and fundamental role in Chinese brain imaging studies. In the last 6 years, the team has created a new human brain atlas, i.e. the Human Brainnetome Atlas, which was built upon a connectivity-based parcellation framework, derived from non-invasive multimodal neuroimaging techniques.

BrainVision Analyzer 2
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Flywheel is empowering research momentum by providing researchers across the globe with a platform to capture data, manage and analyze their data, and collaborate with other researchers. We give our users the technology they need to do science, not IT.

g.tec medical engineering GmbH
Booth #40
Austria
www.gtec.at
43 7251 22240
office@gtec.at

g.tec is a growing enterprise in Brain Computer Interface (BCI) with two branches in Austria (Graz and Schiedlberg), one branch in Spain (Barcelona), one branch in the US (Albany, New York) and distribution partners all over the world. All hardware and software development is done in-house by our team of researchers, engineers and developers. g.tec is also an active member in a number of national and international research projects and is active in scientific publishing

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Booth #26
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www.hurondigitalpathology.com
519-886-9013
mchesney@hurondigitalpathology.com

Localite GmbH
Booth #19
Germany
www.localite.de
49 2241 14 2174
office@localite.de

Localite is a german manufacturer of unique medical navigation systems for research and therapy and supports leading researchers all over the world. In this year's exhibition Localite presents its flagship product TMS Navigator. Among the exciting features are support for brain mapping, robotic assisted coil positioning and MRI compatibility.

Neuro Device Group
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www.neurodevice.pl/en/
48 22 66 21 530
o.reunamo@neurodevice.pl

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neuroCare Group GmbH
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neuroCare is a leading provider of neuromodulation technology for neuroscience and clinical applications. Our world leading transcranial electrical stimulators (neuroConn DC-STIMULATOR) apply tDCS, tACS and tRNS alone or simultaneously with neuroimaging methods, such as full-band DC-EEG (neuroConn NEURO PRAX®) / MEG and fMRI. neuroConn DC-STIMULATOR devices are used in 80 % of all tES studies worldwide.

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NIRx Medical Technologies, LLC. is a world-leader in providing integrated solutions for functional near infrared spectroscopy topographic and tomographic imaging. We offer a complete range of portable/mobile and lab based modular fNIRS systems that allow for high density and whole head measurements with outstanding signal quality.

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821089438154
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Philips Neuro is increasing our commitment to basic and applied neuroscience research, combining expertise in high density EEG-based brain imaging and personalized neuromodulation with expertise in diagnostic imaging and informatics. Visit our booth to see our exciting new products and our vision for the future.

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Rogue Research, Inc.
Booths #27 & 29
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www.rogue-research.com
82-2-747-7422
info@rogue-research.com

Rogue Research, developers of the Brainsight® family of neuronavigation products, has been providing researchers with the best in neuronavigation for TMS and animal neurosurgical systems for over 18 years. Our software is the most widely used neuronavigation tool in the field of neuroscience. Our unique Brainsight NIRS system allows acquisition during TMS and simultaneous fNIRS along with EEG, fMRI or MEG. Brainsight cTMS provides unequalled control of the TMS pulse parameters. More recently, Brainsight Vet and our surgical 6-axis robot extends navigation to small animal neurosurgery. We also have the capacity to design and develop custom hardware solutions for your research needs. Come see how our turnkey solutions can help your research.

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www.ying-chi.net/en/
18565682542
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Yingchi specializes in developing and marketing the non-invasive magnetic brain stimulation systems for depression treatment as well as clinical determination and research in the areas of neurophysiology, neurology, cognitive neuroscience, rehabilitation and psychiatry. The main products include TMS, tDCS, robotic arm for TMS, neuronavigation system and so on. At the meantime, we market a series of accessories of TMS including more than 20 kinds of dedicated coils (enable to meet different requirements of clinic and research). The TMS are available to combine with EEG/ERP/EMG/MEP. More information please visit www.ying-chi.net.

Soterix Medical
Booth #5
United States
www.soterixmedical.com
1-888-990-8327
contact@soterixmedical.com

Soterix Medical is the leader in Noninvasive Electrical Brain Stimulation and introduced High Definition-transcranial Electrical Stimulation (HD-tES), which is the only targeted sub-threshold Neuromodulation technology. HD-tES allows coupling with research-grade monitoring technologies like EEG, MEG, fNIRS, etc. Soterix Medical offers a range of innovative solutions from Telemedicine, Spinal Cord to Animal Stimulation.

YBRAIN INC
Booth #34
Republic of Korea
ybrain.com/en/
82-2-535-2871
inquiries@ybrain.com

Ybrain is a healthcare company that researches and develops for wearable medical devices based on Neuroscience.

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POSTER CATEGORIES

CATEGORY/SUB-CATEGORY	POSTER NUMBERS
BRAIN STIMULATION METHODS	
Deep Brain Stimulation	1000-1004
Direct Electrical/Optogenetic Stimulation	1005-1007
Invasive Stimulation Methods Other	1008
Non-invasive Electrical/tDCS/tACS/tRNS	1009-1015
Non-invasive Magnetic/TMS	1016-1020
Non-Invasive Stimulation Methods Other	1021-1026
Sonic/Ultrasound	1027-1029
TDCS	1030-1038
TMS	1039-1053
DISORDERS OF THE NERVOUS SYSTEM	
Addictions	1054-1084
Alzheimer's Disease and Other Dementias	1085-1156
Anxiety Disorders	1157-1165
Autism	1166-1202
Bipolar Disorder	1203-1210
Depressive Disorders	1211-1254
Disorders of the Nervous System Other	1255-1279
Eating Disorders	1280-1285
Epilepsy	1286- 1311
Medical illness with CNS impact (e.g. chemotherapy, diabetes, hypertension)	1312-1323
Obsessive-Compulsive Disorder and Tourette Syndrome	1324-1330
Other Psychiatric Disorders	1331-1345
Parkinson's Disease and Movement Disorders	1346-1388
Research Domain Criteria studies (RDoC)	1389-1392
Schizophrenia and Psychotic Disorders	1393-1437
Sleep Disorders	1438-1440
Stroke	1441-1467
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Emotion and Motivation Other	1489-1497
Emotional Learning	1498-1505
Emotional Perception	1506-1530
Reward and Punishment	1531-1537
Sexual Behavior	1538-1539
GENETICS	
Genetic Association Studies	1540-1553
Genetic Modeling and Analysis Methods	1554-1561
Genetics Other	1562-1567
Neurogenetic Syndromes	1568-1571
Transcriptomics	1572-1573
HIGHER COGNITIVE FUNCTIONS	
Decision Making	1574-1608
Executive Function	1609-1630
Higher Cognitive Functions Other	1631-1653
Imagery	1654-1657
Music	1658-1670
Reasoning and Problem Solving	1671-1673
Space, Time and Number Coding	1674-1681

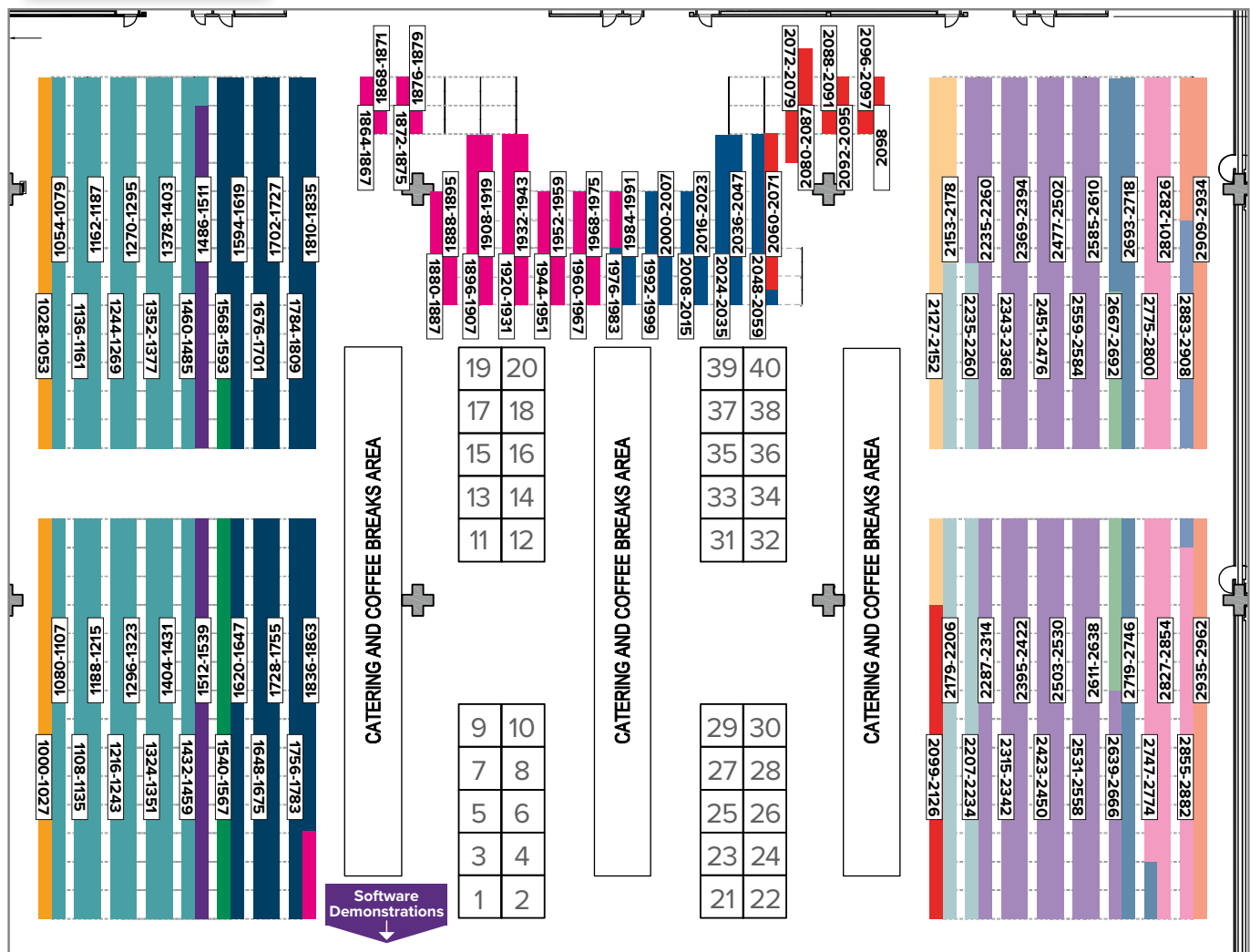| CATEGORY/SUB-CATEGORY	POSTER NUMBERS
IMAGING METHODS	
Anatomical MRI	1682-1720
BOLD fMRI	1721-1818
Diffusion MRI	1819-1853
EEG	1854-1896
Imaging Methods Other	1897-1900
MEG	1901-1914
MR Spectroscopy	1915-1925
Multi-Modal Imaging	1926-1960
NIRS	1961-1973
Non-BOLD fMRI	1974-1975
PET	1976-1979
Polarized light imaging (PLI)	1980
INFORMATICS	
Brain Atlases	1981-1996
Databasing and Data Sharing	1997-2016
Informatics Other	2017-2033
Workflows	2034-2060
LANGUAGE	
Language Acquisition	2061-2069
Language Comprehension and Semantics	2070-2083
Language Other	2084-2088
Reading and Writing	2089-2104
Speech Perception	2105-2120
LEARNING AND MEMORY	
Implicit Memory	2121
Learning and Memory Other	2122-2126
Long-Term Memory (Episodic and Semantic)	2127-2142
Neural Plasticity and Recovery of Function	2143-2146
Skill Learning	2147-2157
Working Memory	2158-2165
LIFESPAN DEVELOPMENT	
Aging	2166-2200
Lifespan Development Other	2201-2214
Normal Brain Development: Fetus to Adolescence	2215-2247
MODELING AND ANALYSIS METHODS	
Bayesian Modeling	2248-2254
Classification and Predictive Modeling	2255-2313
Diffusion MRI Modeling and Analysis	2314-2332
EEG/MEG Modeling and Analysis	2333-2358
Exploratory Modeling and Artifact Removal	2359-2368
fMRI Connectivity and Network Modeling	2369-2498
Image Registration and Computational Anatomy	2499-2508
Methods Development	2509-2553
Motion Correction and Preprocessing	2554-2559
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Other Methods	2575-2578
PET Modeling and Analysis	2579-2583
Segmentation and Parcellation	2584-2615
Task-Independent and Resting-State Analysis	2616-2652
Univariate Modeling	2653-2654
MOTOR BEHAVIOR	
Brain Machine Interface	2655-2662
Mirror System	2663-2666
Motor Behavior Other	2667-2671
Motor Planning and Execution	2672-2675
Visuo-Motor Functions	2676-2677

Please note the map is not to scale and is subject to minor changes as posters are withdrawn.

2018 OHBM Poster Listing Map
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CATEGORY/SUB-CATEGORY	POSTER NUMBERS
NEUROANATOMY	
Anatomy and Functional Systems	2678-2688
Cortical Anatomy and Brain Mapping	2689-2709
Cortical Cyto- and Myeloarchitecture	2710-2714
Neuroanatomy Other	2715
Normal Development	2716-2719
Subcortical Structures	2720-2726
Transmitter Systems	2727-2728
White Matter Anatomy, Fiber Pathways and Connectivity	2729-2751
PERCEPTION AND ATTENTION	
Attention: Auditory/Tactile/Motor	2752-2754
Attention: Visual	2755-2770
Chemical Senses: Olfaction, Taste	2771-2777
Consciousness and Awareness	2778-2789
Perception and Attention Other	2790-2794
Perception: Auditory/ Vestibular	2795-2803
Perception: Multisensory and Crossmodal	2804-2806
Perception: Pain and Visceral	2807-2826
Perception: Tactile/Somatosensory	2827-2832
Perception: Visual	2833-2874
Sleep and Wakefulness	2875-2880

CATEGORY/SUB-CATEGORY	POSTER NUMBERS
PHYSIOLOGY, METABOLISM AND NEUROTRANSMISSION	
Cerebral Metabolism and Hemodynamics	2881-2886
Neurophysiology of Imaging Signals	2887-2891
Pharmacology and Neurotransmission	2892-2897
Physiology, Metabolism and Neurotransmission Other	2898
SOCIAL NEUROSCIENCE	
Self Processes	2899-2909
Social Cognition	2910-2928
Social Interaction	2929-2950
Social Neuroscience Other	2951-2962

SOFTWARE DEMONSTRATIONS

SOFTWARE DEMONSTRATIONS
Hall 401-403

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Tuesday, June 19, 12:45 – 14:45

2706: Neuroimaging Correlates of Maternal Smoking Later in Life: Analysis of the UK Biobank Cohort
Lauren Salminen, University of Southern California, Marina del Rey, CA, United States

2050: PIVT: A Platform Independent Visualization Tool
Armin Taheri, The Mind Research Network, Albuquerque, NM, United States

2309: Crowdsourced development and validation of neurocomputational models of psychological processes
Luke Chang, Dartmouth College, Hanover, NH, United States

2032: Multi-user Visualization of Brain Imaging Data in Virtual Reality
David Shattuck, UCLA, Los Angeles, CA, United States

2035: FMRIprep: Building a Robust Preprocessing Pipeline for fMRI
Christopher Markiewic, Stanford University, Stanford, CA, United States

2037: Clowdr: a micro-service model for scalable, reproducible, and accessible neuroinformatics
Gregory Kiar, McGill University, Montreal, Canada

2403: Porcupine: a visual pipeline tool for neuroimaging analysis
Tim van Mourik, Donders Institute for Brain and Cognition, Nijmegen, Netherlands

2023: Enabling large-scale fMRI analysis with BrainIAK
Mihai Capotă, Intel Corporation, Hillsboro, OR, United States

Wednesday, June 20, 12:45 – 14:45

2053: BrainSuite Workflow and Quality Control System
David Shattuck, UCLA, Los Angeles, CA, United States

2299: Pattern Recognition for Neuroimaging Toolbox (PRoNTo) v2.1
Tong Wu, University College London, London, United Kingdom

2011: Pybids: Python tools for manipulation and analysis of BIDS datasets
Tal Yarkoni, University of Texas at Austin, Austin, TX, United States

2575: Reconstructing unthresholded statistical maps from peak coordinates using deep neural networks
Krzysztof Gorgolewski, Stanford University, Stanford, CA, United States

2318: Mipy: An Open-Source Framework to improve reproducibility in Brain Microstructure Imaging
Rutger Fick, INRIA, Sophia Antipolis, France

1998: LORIS Multimodal platform for data sharing and visualization: MNI Open iEEG Atlas
Christine Rogers, McGill Centre for Integrative Neuroscience, Montreal Neurological Institute, Montreal, Canada

2044: FreeROI: A Comprehensive Toolbox for Region of Interest Delineation and Edit
Xiayu Chen, State Key Laboratory of Cognitive Neuroscience and Learning & IDG/McGovern Institute for Brain Research, Faculty of Psychology, Beijing Normal University, Beijing, China

Thursday, June 21, 12:45 – 14:45

2024: MACS – a new SPM toolbox for model assessment, comparison and selection
Joram Soch, Bernstein Center for Computational Neuroscience, Berlin, Germany

2004: Collaborative curation of articles collections for meta-analyses in brain imaging: Brainspell-neo
Jean-Baptiste Poline, McGill University, Montreal, Quebec, Canada

2537: FMRell – a toolbox for the analysis of fMRI reliability
Juliane Frohner, Technische Universitat Dresden, Dresden, Germany

1900: This submission is a PDF, but the neuroscience papers of the future are not
Jan Freyberg, ASI Data Science, London, Greater London, United Kingdom

2041: GRETNA 2.0.0 and BrainNet Viewer 1.61: Toolkits for Brain Network Analysis and Visualization
Mingrui Xia, National Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, Beijing, China

2535: Matrix-normal models for fMRI analysis
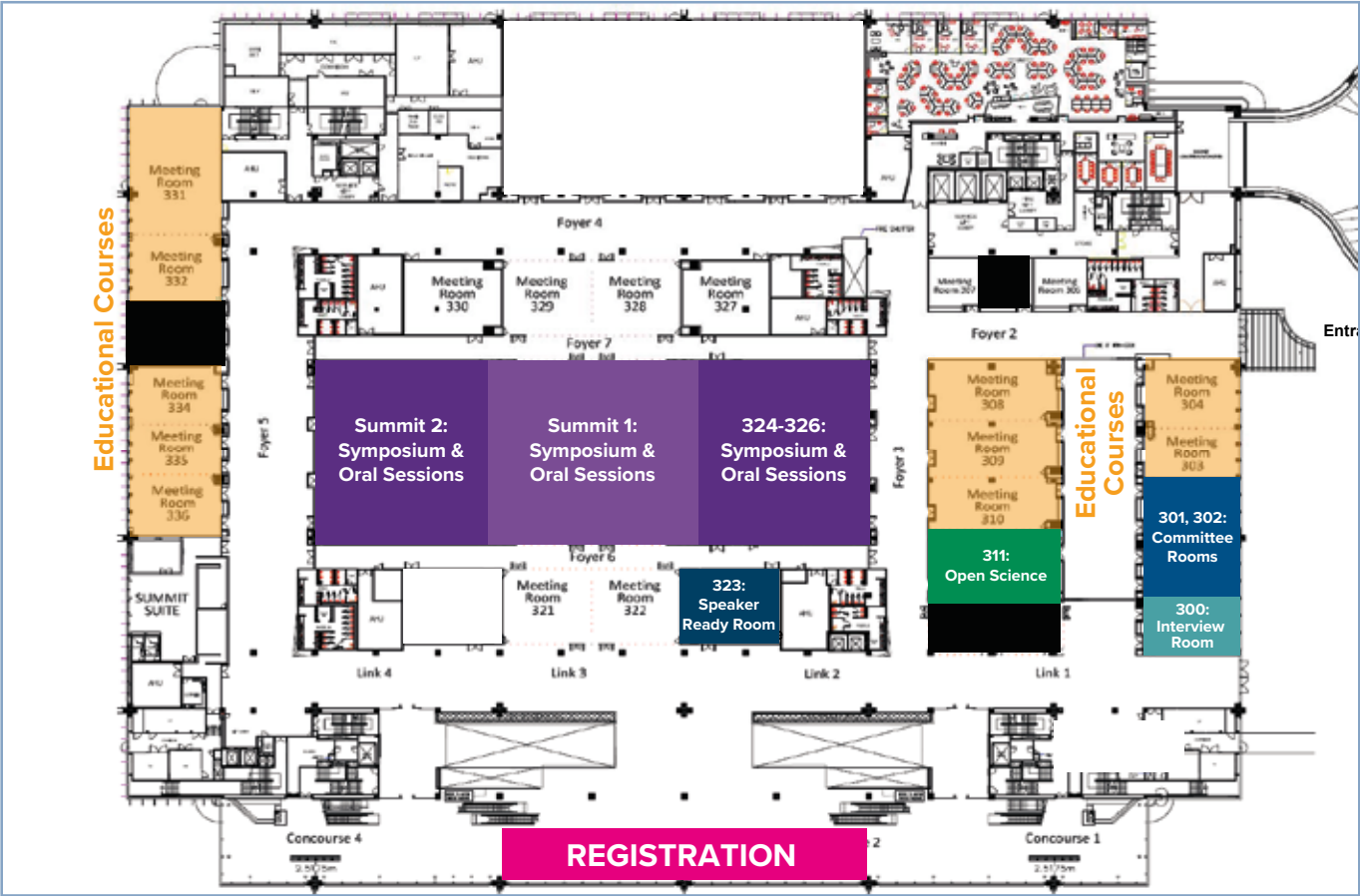*Michael Shvartsman, Princeton University, Princeton, NJ, United States*

2026: BrainVerse: An Electronic Laboratory Notebook for Reproducible Neuroimaging Research
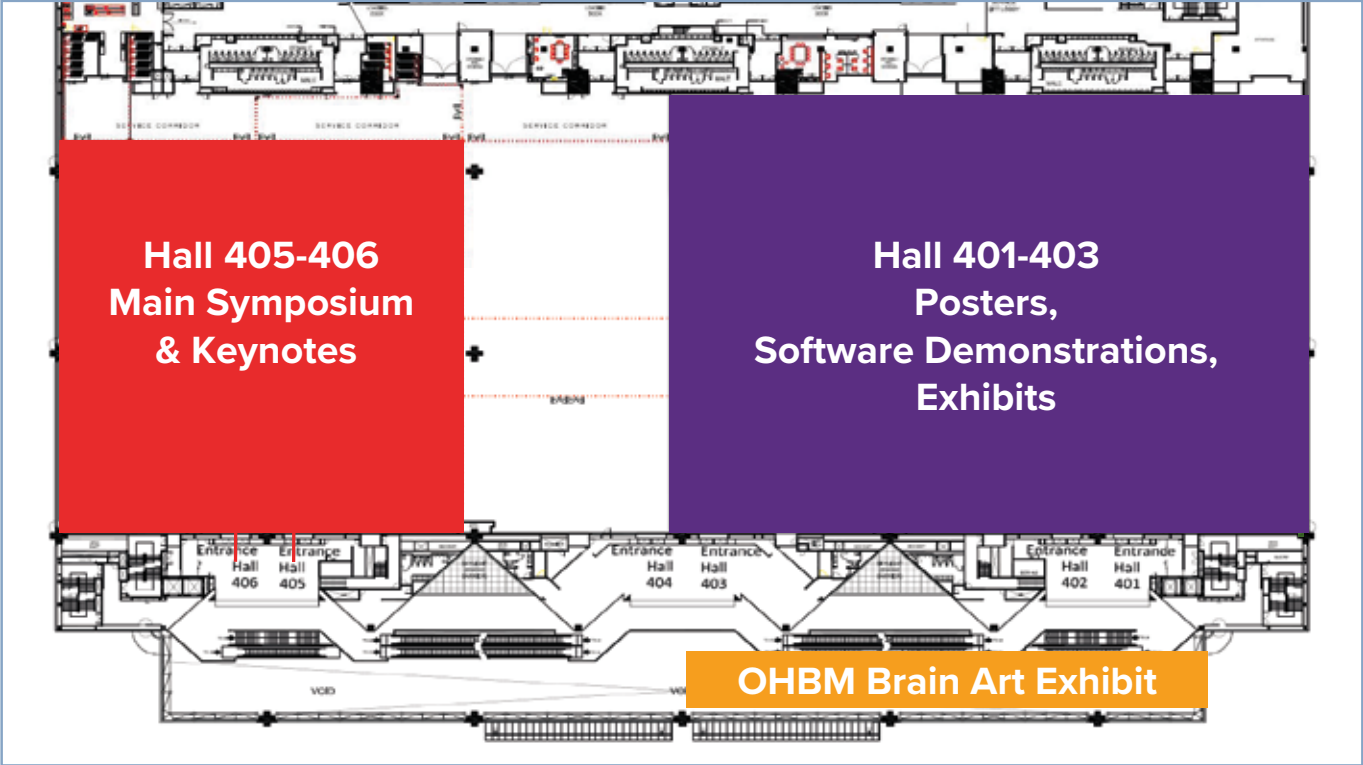*Smruti Padhy, Massachusetts Institute of Technology, Cambridge, MA, United States*

SUNTEC CONVENTION AND EXHIBITION CENTRE LAYOUT

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