EITN Activity Report (D4.14 - SGA3)

Figure 1: Presentation of the European Institute of Theoretical Neuroscience

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Description in GA:	This report will summarise the activities of the EITN, the workshops and visitor programme, as well as the information that was made available through the EITN web site.
Abstract:	This Deliverable describes the activities of the EITN during the SGA3 phase.
Keywords:	EITN, Theoretical neuroscience, Workshop, EITN Fall School
Target Users/Readers:	Computational neuroscience community, computer scientists, consortium members, general public, neuroimaging community, neuroinformaticians, neuroscientific community, neuroscientists, platform users, policymakers, researchers, scientific community, Postdocs, PhD, and master's students.

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1. Introduction

The European Institute for Theoretical Neuroscience (EITN) is a science-oriented structure founded in 2014 as part of the Theoretical Neuroscience activities of The Human Brain Project (HBP). Its activities are essentially related to science, research, and education.

EITN promotes interaction between theory and experiments, between theory and EBRAINS[1], as well as theory, ethics, and neuro-philosophy. The Institute is open to neuroscience researchers from all over Europe and the rest of the world, whether there are HBP-EBRAINS partners or not.

The EITN is headed by Dr. Alain Destexhe and operated by the Paris-Saclay Institute of Neuroscience (Neuro-PSI), multidisciplinary and internationally recognized mixed unit of the CNRS and Paris-Saclay University.

2. EITN as an incubator of ideas in the HBP-EBRAINS

The aim of EITN is to serve as an incubator of ideas in the HBP-EBRAINS communities, creating interactions within the project, as well as between the HBP-EBRAINS and the scientific community outside the project.

Located in Paris area, in the biggest French scientific campus Saclay, the EITN contributes to and benefits from a great scientific environment. The benefits include:

Proximity with experimentalists. The EITN is a theory centre embedded in an experimental neuroscience environment: Neuro-PSI with experimental laboratories from molecular, cellular, circuits, sensory systems up to brain imaging, as well as theoretical neuroscience and neuroinformatic groups. It encourages its researchers and students to be directly involved in experiments, or to develop mixed experimental and theoretical projects. Collaboration with the experimentalists include all 22 groups of Neuro-PSI and the experimental and theoretical teams of the HBP-EBRAINS and NeuroSpin, research centre for innovation in brain imaging.

A centre of exchange welcoming theoreticians. The institute hosts theoreticians, who are encouraged to spend time in the experimental labs and develop mixed experimental/theoretical projects. Similarly, the EITN welcomes experimentalist researchers to interact with the theoreticians and develop interdisciplinary projects.

The main activities of the EITN, the workshops, visitor and education programs, contribute to confront the ideas developed in the HBP with the international scientific community. The EITN does not only broadcasts ideas and brain theories developed in the project, but also gathers innovative ideas from the intense interactions taking place during the workshops.

In addition, EITN supports reducing gender disparity in Theoretical Neuroscience paying special attention to attaining gender balance among invited speakers for workshops, scientific visitors, and students at the Fall Schools in Computational Neuroscience.

3. Activities

3.1 Workshop Program

The EITN organises and co-organises international workshops, open to everyone, in multiple subjects in the field of theoretical neuroscience. This field is closely related to experimental neuroscience, physics, mathematics, information technologies and other fields such as arts or neurophilosophy.

[1] EBRAINS is the primary legacy from the Human Brain Project: a European research infrastructure for gathering, processing, and simulating brain data.

On the one hand, these meetings are an excellent opportunity to bring together researchers from different fields such as modelers, neuroscientists, theoreticians, and experimentalists. On the other hand, the combination of scientific talks and the time dedicated to questions encourage interactions, in particular, between theory and experiments, and between theory, ethics and neurophilosophy. Thanks to the small groups format involving from 30 to 50 participants, in-depth discussions and exchanges of ideas are facilitated between participants.

Each workshop has a unique set of objectives:

- Gaining deeper insights into a theme
- Bringing together complementary views
- Contrasting topics in a specific field
- Reviewing the different approaches to a given topic
- Identifying novel cross-cutting areas of interest in different domains.

The ideas that emerge during these workshops can inspire future research, as well as novel collaborations between participants.

The Scientific Director, Alain Destexhe, has been part of HBP since the beginning of the Flagship and has established collaborations with numerous HBP partners. The interactions have facilitated the creation of workshop organising committees that include members from different institutions who have developed workshop programmes on subjects of wide interest.

Theoretical neuroscience is at a crossroads of many fields such as experimental neuroscience, physics, mathematics, and information technologies. The research themes of the EITN workshops range from the microscopic (single neurons) to the macroscopic (entire brain areas) aspects in order to better understand the brain:

Bridging scales: deriving simplified neuron and neural circuit models from biophysically morphologically detailed models; modelling brain signals at different scales, from intracellular, local field potentials, VSD up to EEG and MEG signals;

Generic models of brain circuits: providing theoretical methods for large-scale simulations with generic networks models. The models investigated are aimed at being fully compatible with the Human Brain Projects platforms;

Learning and memory: deriving learning rules from biophysical synapse models; unsupervised learning rules and emergent connectivity;

Models of cognitive processes: models for perception-action; models for working memory; models of biologically realistic network states, wakefulness, and sleep;

Linking model activity and function to experimental data: linking theoretical models at various levels of description to cross-bridge neuroscience and models implemented in various Human Brain Project platforms.

Each of these themes is the basis of events organized at the EITN during the SGA3:

The conferences and their programme are posted on the EITN website[2], as well as the terms and conditions of participation. The registration is free but mandatory. In general, the conferences and workshops have been open, within the size limitations of the conference, which is normally between 30-50 people. In collaboration with HBP Education and University of Bern, EITN has organised considerably larger conferences- with up to 300-400 people: for example, CORTICON (Figure 2) and "Anatomy and function of the prefrontal cortex across species".

Many of the workshops were recorded and the scientific presentations can be watched on YouTube. The corresponding links are provided on EITN site (eitn.cnrs.fr[3]).

[2] https://eitn.cnrs.fr
[3] https://eitn.cnrs.fr/workshop-presentations/

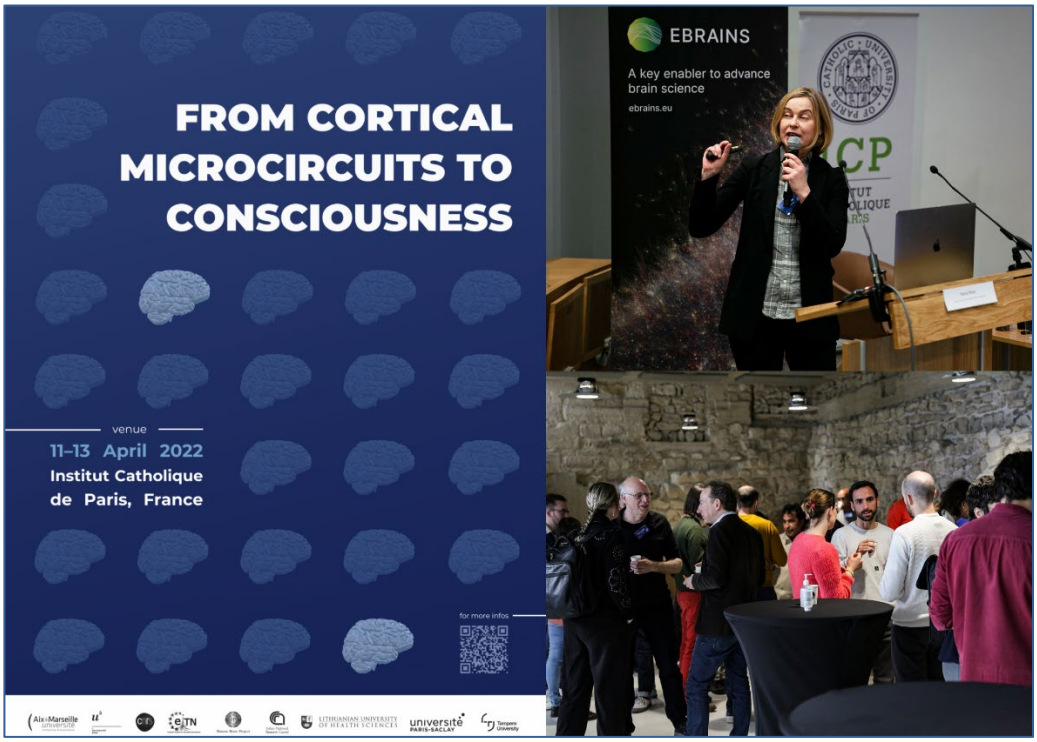

Figure 2: Workshop CORTICON

3.1.1 EITN Workshops held from 01/04/2020 to 30/09/2023

February 4, 2021

Workshop on Whole-brain simulations of the monkey brain (ONLINE).

Organized by Alain Destexhe (CNRS), Frédéric Chavane (Aix-Marseille Université) and Viktor Jirsa (Aix-Marseille Université), this workshop discussed the modelling of large-scale activity in the macaque brain, in particular using population models (Figure 3).

It can be seen here: https://www.youtube.com/playlist?list=PLGAiaveljnkiqGn59MrzApQhpa37gt9j

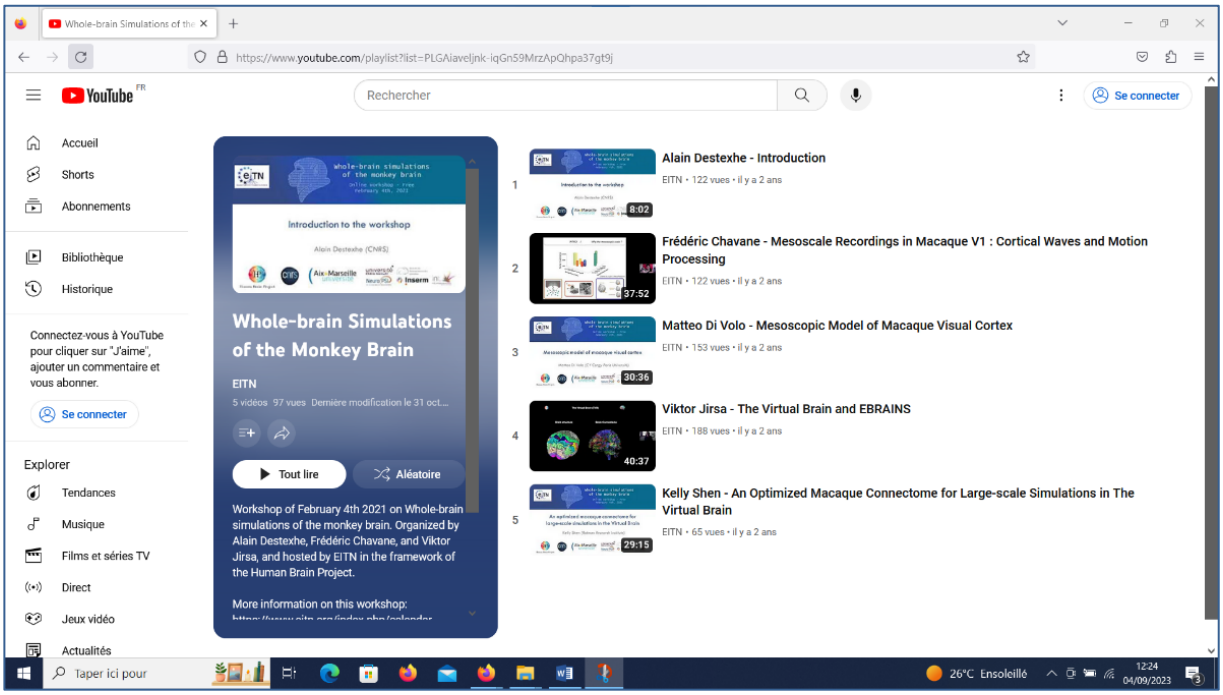

Figure 3: Recorded presentations of the workshop on Whole-brain simulations of the monkey brain

March 10, 2021

Workshop on Multisite recordings and distributed representations in the macaque brain (ONLINE).

Organized by Alain Destexhe (CNRS), Frédéric Chavane (Aix-Marseille Université) and Viktor Jirsa (Aix-Marseille Université) in coordination with the "GDR Biosimia" a federative group on NHP research in France.

Multisite recordings have progressed tremendously in the last years, following the availability of new recording techniques, microelectrode arrays, high-density microprobes, new dyes for imaging, etc. Such techniques provide invaluable data on the "mesoscale," spanning typically over one or two brain areas. In parallel, progress has been made in the computational description of mesoscale activity using population models, going from brain regions up to the whole brain. The goal of this workshop was to put together experimentalists and theoreticians working at the mesoscale level of large networks in the macaque brain and evaluate which new tools (such as TVB or EBRAINS) would be needed to facilitate this interaction.

April 16, 2021

Workshop on State-dependent brain responsiveness, from circuits to the whole brain.

Organized by Alain Destexhe, Mavi Sanchez-Vives, Marcello Massimini.

Brain circuits respond to external inputs in a way that depends on their activity state. This is true for elementary circuits, such as cortical slices that can be modulated across different activity states. This is also true *in vivo,* where the brain state can be modulated either by varying the depth of anesthesia, or during the wake-sleep cycle.

The goal of this workshop was to find common principles to understand how brain circuits respond according to their state of activity. This has been examined from *in vitro* mouse and rat preparations *in vivo* non-human primate, and up to the human brain.

In each preparation, we also consider models of brain circuits, at different scales from the cortical column up to whole-brain models.

May 5—6, 2021

Workshop on Energy and entropy measures in neural systems.

Organized by Alain Destexhe, Jennifer Goldman, Mavi Sanchez-Vives, Pier Stanislao Paolucci, Chiara DeLuca, Cristiano Capone, Trang-Anh Nghiem.

Brain circuits in vivo or in vitro display a wide variety of activity states, and they may also respond to external inputs differently in each state.

The goal of this workshop was to evaluate and compare tools to understand both the activity state, and its responsiveness, based on energy and entropy concepts commonly used in physics. We reviewed different ways of defining relevant measures of energy and entropy, and how they apply to analyze brain activity, including brain states and cognitive tasks, and what useful information can be extracted to better understand the system.

We also evaluated the opportunity of writing a collaborative paper that reviews the different techniques and their usefulness.

June 10, 2021

Workshop on Computational Neuroscience in EBRAINS.

Organized by Alain Destexhe, Jennifer Goldman, Mavi Sanchez-Vives, Pier Stanislao Paolucci, Chiara DeLuca, Cristiano Capone, Trang-Anh Nghiem.

The open-access platform EBRAINS is built by the Human Brain Project and provides tools for various applications in neuroscience. The aim of this workshop was to introduce some of the EBRAINS tools that are of particular interest for applications in computational neuroscience. These tools provide help to simulate models, from the cellular to the whole-brain level. Each tool has been introduced, then a "live demo" was provided to demonstrate its use.

June 18, 2021

Seminar: Information processing in neural circuits with multiple quasi-stable attractor states.

by Paul Miller (Brandeis University, Waltham MA, USA).

Circuits containing clusters of neurons with strong within-cluster excitatory connections and random between-cluster connections can possess multiple activity states, with each state defined by the set of clusters with stably high versus low neural firing rates. Noise or adaptive processes can render the states quasi-stable such that in the presence of constant input, or following successive identical inputs, the network can progress through a sequence of different activity states. The properties of such models were studied, including the role of finite size effects in producing multistability in networks with Gaussian random cross-coupling. The seminar assessed the extent to which such state sequences might subserve information processing and behaviour in a range of cognitive tasks.

July 6—7, 2021

Workshop on Dynamic properties of brain states and their transitions.

Organized for OCNS by Alain Destexhe (CNRS, Paris, France), Jennifer Goldman (CNRS, Paris, France), Alessandra Camassa (Institute of Biomedical Research August Pi i Sunyer, Barcelona, Spain), Mavi Sanchez-Vives (Institute of Biomedical Research August Pi i Sunyer, Barcelona, Spain).

Computational neuroscience offers insights into the dynamical properties of the brain under different states of awareness. The classification of brain states is relevant not only for the

multiscale investigation of circuits and full brain networks, but also clinically relevant for the diagnosis (and eventual treatment) of disorders of sleep and consciousness, and to identify novel targets for anesthesia.

The temporal and spatial features of activity patterns generated by the brain under different states provide information about the computations carried out by the brain during different states, and the mechanisms and dynamics underlying transitions across states. The joint effort of experimentalists and computational neuroscientists results in electrophysiological, imaging, and simulated data that span space-time scales, to provide unique insights into brain dynamics and novel explanations of observed phenomena, providing new possibilities for overcoming experimental limitations.

In this workshop we brought together a wide range of experimental and clinical approaches, analysis techniques and computational models, generating multimodal and multiscale data and simulations to characterize the spontaneous spatiotemporal activity of the brain, its responsiveness, complexity, and dynamical properties under different brain states.

September 29—October 1, 2021

Towards multipurpose neural network models II: Model testing and model fitting (ONLINE).

Organized by Anton Arkhipov (Allen Institute, Seattle), Gaute Einevoll (NMBU/University of Oslo).

Starting with the work of Hodgkin, Huxley, Cole, Rall, Katz, Eccles, and others in the 1950s and 1960s, we have obtained a reasonably good understanding of the biophysical principles by which single neurons operate. For neural circuits, the understanding is much more limited. Most network studies have considered stylized models with a few populations of identical neurons and focused on explaining a particular experimental phenomenon. However, real neural networks consist of a variety of neuron types and have structured synaptic connections. Furthermore, real networks typically perform multiple functions and can be characterized by a variety of readouts from various measurement modalities, including spiking activity, local field potentials, and others. How can we move towards multipurpose models that incorporate the true biological complexity of neural circuits and faithfully reproduce multiple observables in many different situations?

This workshop focused on two key aspects of the overall endeavour: model testing and model fitting. Multipurpose network models mimicking real neural circuits contain numerous model parameters that must be optimized. Efficient methods for fitting of model parameters to experimental data are thus needed. In addition, candidate models must be systematically tested against a variety of experimental data, requiring development of commonly accepted benchmarks and test suites. These methodological challenges were addressed during the workshop from a variety of angles.

December 3-4, 2021

Workshop on Neural coding in high dimensional, nonlinear systems (ONLINE).

Organized by Jennifer S. Goldman (EITN, CNRS), Trang-Anh E. Nghiem (École normale supérieure de Paris), Alain Destexhe (CNRS) and Wolf Singer (Ernst Strüngmann Institute, Max Planck Society).

This workshop addressed the mechanisms by which brains encodes information.

Neurons - leaky, stochastic channels - interact nonlinearly to entrain synchrony and resonance phenomena thereby reducing dimensionality in dynamics of the cell assemblies coding particular representations. From unconscious to conscious brain states, spontaneous neural signals increase in dimensionality. Since neural codes likely lie on low dimensional manifolds, we explored collapses in dimensionality within encoding networks as mechanisms supporting neural information specifically in conscious states.

The purpose of the workshop was to bring together researchers in neuroscience, mathematics, physics, and computer science to explore substrates promoting self-organization of neural dynamics, toward a robust understanding of neural codes important for reverse engineering next generation biomimetic computing architectures.

April 11—13, 2022

Symposium "From Cortical Microcircuits to Consciousness" (CORTICON)

Organized by Walter Senn (University of Bern/Human Brain Project), Aušra Saudargien (Lithuanian University of Health Sciences), Alain Destexhe (Centre National de la Recherche Scientifique), Viktor Jirsa (Aix-Marseille University), Michele Migliore (Italian National Research Council), Marja-Leena Linne (Tampere University).

The aim of the symposium was to bring together neuroscientists from the HBP and invited guests to present their latest achievements in understanding cortical circuits at various scales, including the emergence of consciousness.

Theories of consciousness were reviewed and challenged by new findings from brain circuits and behaviour. The involvement of neuronal and neuroglial cells in brain functioning, memory, learning, cognition and consciousness in health and disease were discussed from the experimental and theoretical perspective. The Symposium addressed neuroethics and neurophilosophy with links to society in a public key note, followed by a panel discussion by experts.

The Symposium also offered a hands-on session on The Virtual Brain, the platform of EBRAINS for constructing and simulating personalized brain network models.

Finally, the Symposium addressed the recent advances in neuroethics and neurophilosophy in neuroscience research and society.

Talks were recorded and may be accessed at:
https://www.youtube.com/playlist?list=PLvAS8zldX4Cj7wxGt1rptplas84hoGP71

April 19—21, 2022

Computational basis of intelligence and its social implications. Brain, AI, and Society.

Organized by Boris Gutkin, Adrienne Fairhall, Eric Shea-Brown, and Alain Destexhe.

A two day workshop on AI, the Brain and Society at the Paris Institute of Advanced Studies brought together scientists, engineers, philosophers and ethicists to discuss how brain science is impacting the development of AI, what AI has to tell us about the brain, and how AI advances will influence society, our interactions with one another and with our devices. The workshop included around 70 people, including researchers, technologists and students from the Paris area as well as international invited speakers. It focused primarily on open discussion in panels.

May 2, 2022

Virtual Brains & Digital Twins: A Tentative Roadmap – Neuroethical perspectives.

Organized by Kathinka Evers (Uppsala Universitet), Viktor Jirsa ((Aix-Marseille Université), and Alain Destexhe

The workshop focused on virtual brains and digital twins in neuroethics and science, analysing (a) epistemic and neuroethical challenges of virtual brains and digital twins, (b) the nature of a digital brain twin: how real it is, and (c) the neuroethical issues arising from digital twins in epilepsy and Alzheimer research and treatment. Young researchers from HBP also presented their view about the construction and validation of neural models at different scales, from neural networks to whole-brain models.

July 8, 2022

FENS Satellite Symposium: "EU infrastructure empowering brain research."

The EBRAINS FENS satellite event 'EBRAINS Research Infrastructure Symposium: addressing grand challenges in brain research' was aimed at bringing together experimental, clinical, and computational neuroscientists. The program was structured to highlight the bridges between basic and clinical neuroscience and computational neuroscience. It was structured therefore around four sessions on why, what, how and where to integrate multi-resolution and multi-scale data for neuroscience research.

October 10-11, 2022

Think-Tank Workshop on Horizontal Connectivity.

Organized by Alain Destexhe (EITN, NeuroPSI), Yves Frégnac (NeuroPSI), Frédéric Chavane (Aix-Marseille Université), and Diego Contreras (U-Penn, Philadelphia, RI, USA)

The workshop gathered both experimental and computational neuroscientists utilizing various paradigms and models to understand the structure and function of horizontal connectivity in neocortex. The workshop finished with demonstrations on how to implement and store data and models in EBRAINS. The main outcome of the meeting was that participants (not only the speakers) initiated a discussion around opportunities for common projects, and possible joint grant submissions. This includes both HBP and non-HBP researchers, as well as European and non-European institutions. We hope that this workshop will have a significant impact in generating new collaborations and research lines in the years to come.

March 14—16, 2023

Anatomy and function of the prefrontal cortex across species.

Organized by Timo van Kerkoerle (NeuroSpin, CEA Saclay, France), Ruth Benavides-Piccione (Cajal Institute, CSIC & Universidad Politécnica de Madrid, Spain), Alain Destexhe (NeuroPsi, CNRS, EITN, France)

Understanding the human brain relies for a large part on the work in animal models, which necessitates a careful cross-species comparison. The prefrontal cortex (PFC) is particularly relevant in this regard as its function is poorly understood and potential cross-species differences remain highly debated. This workshop brought together experimental and computational scientists whose work allows a comparison of the anatomy and function of the PFC between species (in particular between humans, monkeys, and mice). EBRAINS is uniquely suited to provide a platform to compare anatomy, physiology, and behaviour between species, due to its atlases, numerous datasets, as well as the whole brain models from varied species. The interactive format of the workshop allowed speakers as well as participants from largely separated fields to interact and discuss, which is expected to create novel insights as well as lead to more coherence and clarity in the relevant terminology, formats, and important research directions in the field.

July 6, 2023

Seminar: Travelling cortical waves coordinate neuronal firing associated with awake and hallucinatory perception

By Alex Proekt (Pennsylvania University, USA), organized by Alain Destexhe (CNRS, Paris-Saclay University, France).

Probing deeper into the question of how neural activity drives behaviour, Alex Proekt showcased his expertise as a systems and computational neuroscientist. Using publicly available whole brain imaging data from the worm *Caenorhabditis elegans*, Alex has successfully uncovered a heretofore

unrecognized feature of neuronal dynamics. This novel methodology has enabled Alex to make predictions of future behaviours—not just in a single worm. Having solved the behavioural control loops, he can apply the dynamics to predict impending behaviour in unrelated worms. The results from the Proekt lab demonstrate that predictions based solely on neural activity fail.[10] Rather, it is the trajectory of changes in neural activity that appears critical in predicting behaviour in worms in monkeys and humans as well.

July 11, 2023

Neural Circuits for Reinforcement Learning and Mental Simulation.

by Kenji Doya (Okinawa Institute of Science and Technology, Okinawa, Japan), organized by Alain Destexhe (CNRS, Paris-Saclay University, France) and the EITN.

In the standard "model-free" reinforcement learning, an agent learns an action policy simply through the experiences of state-action-reward sequences. In the "model-based" framework, an agent first learns an internal model of state transition, state-action-next state, and use that for planning of action sequences to reach a goal, or for estimation of the present state from the past state and action in the face of sensory uncertainty. A large body of study suggests that the basal ganglia play an essential role in model-free reinforcement learning. The neural mechanism of model-based reinforcement learning through mental simulation of imaginary states is less clear and an important topic of research. Dr. Doya presented her functional brain imaging study to delineate the whole brain circuit linking the cerebellum, the basal ganglia and the cerebral cortex for mental simulation.

Satellite Workshop of the CNS conference, Leipzig, July 18-19, 2023

Multiscale modelling of cerebral cortex, from neural circuits to whole brain models

Organized by Alain Destexhe (CNRS, Paris-Saclay University, France) and the European Institute of Theoretical Neuroscience (EITN).

This workshop reviewed modelling approaches at different scales and levels, starting from the level of circuits and their modulation. In this case, tools such as NEST or BRIAN are typically used to construct and simulate the networks. This was illustrated for various levels of simplification, from detailed microcircuit models, multilayer models of point neurons, large-scale point neuron models, and simplified models consisting of two populations of spiking neurons, excitatory and inhibitory neurons.

3.2 Visitor Program

The EITN welcomes visitors for periods of time ranging from one to several weeks. This program has been open to researchers from HBP or researchers outside HBP. It has also been open to theoreticians interested to interact with HBP theory researchers, or to experimentalists. The main goal has been to contribute to the HBP research themes, or to EBRAINS, through collaborative work and common publications.

The EITN is conveniently located amidst experimental labs in the Neuro-PSI institute, encouraging visiting researchers to interact with the experimentalists of Neuro-PSI. Similarly, experimentalist visitors are also encouraged to interact with the theoreticians present at the EITN.

For HBP researchers the visitor program has been a good way to create new collaborations within the project. The EITN has offered office space for visitors as well as practical help with travel and accommodation expenses of external visitors staying full time. Due to COVID 19 restrictions during HBP SGA3, EITN has welcomed less visitors than during SGA2. More information is available at https://eitn.cnrs.fr/visitor-program/

Besides the considerable number of HBP and non-HBP speakers invited to the workshops, which participated on one-day visit to the EITN, the programme counted with 5 non-European visitors who stayed longer.

Three of these visitors gave the seminars for scientific community of NeuroPSI and Saclay campus (including NeuroSpin, CEA, Paris-Saclay University: Prof. Adrienne Fairhall ("Information content of dopamine signals during natural behaviour"), Dr. Alex Proekt ("Travelling cortical waves coordinate neuronal

firing associated with awake and hallucinatory perception") and Dr. Kenji Doya ("Neural Circuits for Reinforcement Learning and Mental Simulation").

Prof. Diego Contreras from the University of Pennsylvania is a well-known in vivo electrophysiologist working on the visual system. His participation in think-tank meeting and stay at the EITN was very fruitful and really helped to constrain network simulations developed in HBP.

3.3 EITN Fall School in Computational Neuroscience

The series of EITN Fall Schools in Computational Neuroscience is a continuation from the series of EITN Spring Schools of SGA2. It consists of a 10-day course in theoretical and computational neuroscience, from cellular to whole-brain levels. The course is structured in thematic days with lectures, tutorials, and project work.

The courses are typically aimed at PhD students, young postdocs, or master students interested to learn more about techniques of computational neuroscience, and the use of various simulation environments for model building. Students are encouraged to form thematic groups to work on predefined subjects, with the help of tutors.

The courses facilitate interactions between participants and teaching staff as there are only about 20 -25 seats available, which are assigned after a selection process of all the applications.

The courses focus on cellular models, models of brain signals, circuit models and networks, mean-field models, and whole-brain models, with different lectures and tutorials associated with these topics.

Due to COVID 19 pandemic restrictions the **EITN Fall School 2020** had to be cancelled.

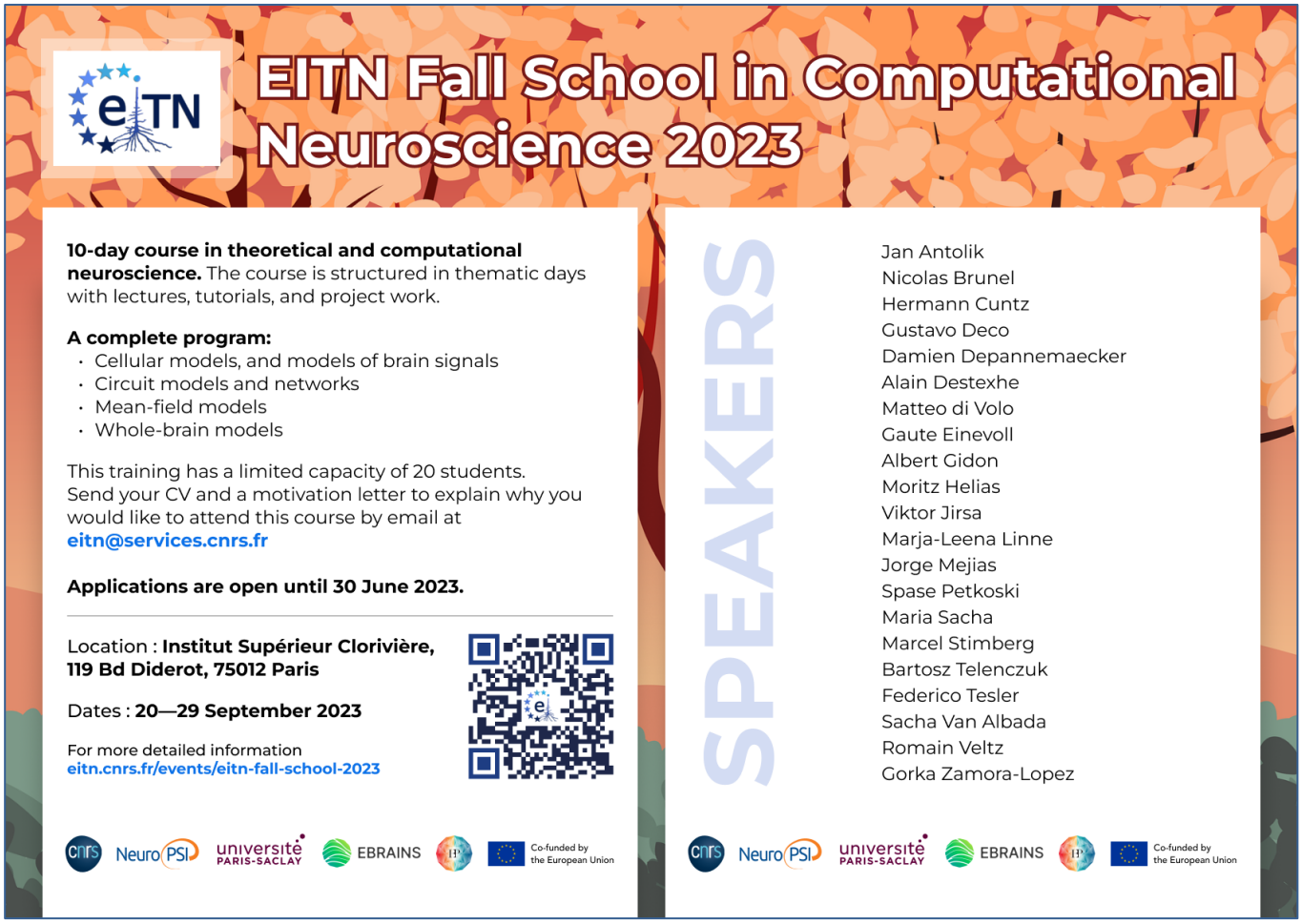

Figure 4: Flyer of EITN Fall School 2023

September 15 - 24, 2021

EITN Fall School. 2021

Organized by Sacha Van Albada (Julich), Albert Gidon (U Berlin), Alain Destexhe (CNRS), Gorka Zamora-Lopez (UPF) and Spase Petkoski (AMU).

September 21 - October 1, 2022

EITN Fall School. 2022

Organized by Sacha Van Albada (Julich), Albert Gidon (U Berlin), Hermann Cuntz (Frankfurt Institute for Advanced Studies, Ernst Strüngmann Institute), Alain Destexhe (CNRS), Matteo di Volo (University Lyon 1), Spase Petkoski (Aix-Marseille Univ.), Gorka Zamora-Lopez (Universitat Pompeu Fabra).

September 20 – 29, 2023 EITN Fall School. 2023 (Figure 4)

Organized by Sacha Van Albada (Julich), Albert Gidon (U Berlin), Hermann Cuntz (Frankfurt Institute for Advanced Studies, Ernst Strüngmann Institute), Alain Destexhe (CNRS), Matteo di Volo (University Lyon 1), Spase Petkoski (Aix-Marseille Univ.), Gorka Zamora-Lopez (Universitat Pompeu Fabra).

4. EITN Dissemination

During the SGA3 period, work has been done to continue the dissemination activity.

The latest version of EITN web page (eitn.cnrs.fr/) was created and regularly updated (Figure 5). It addresses both the scientific community and the general public. The site contains information about EITN main activities and events organized or co-organized by EITN and points to recorded scientific talk registered during past workshops and videos with description of work done in the field of theoretical neuroscience in the framework of HBP-EBRAINS.

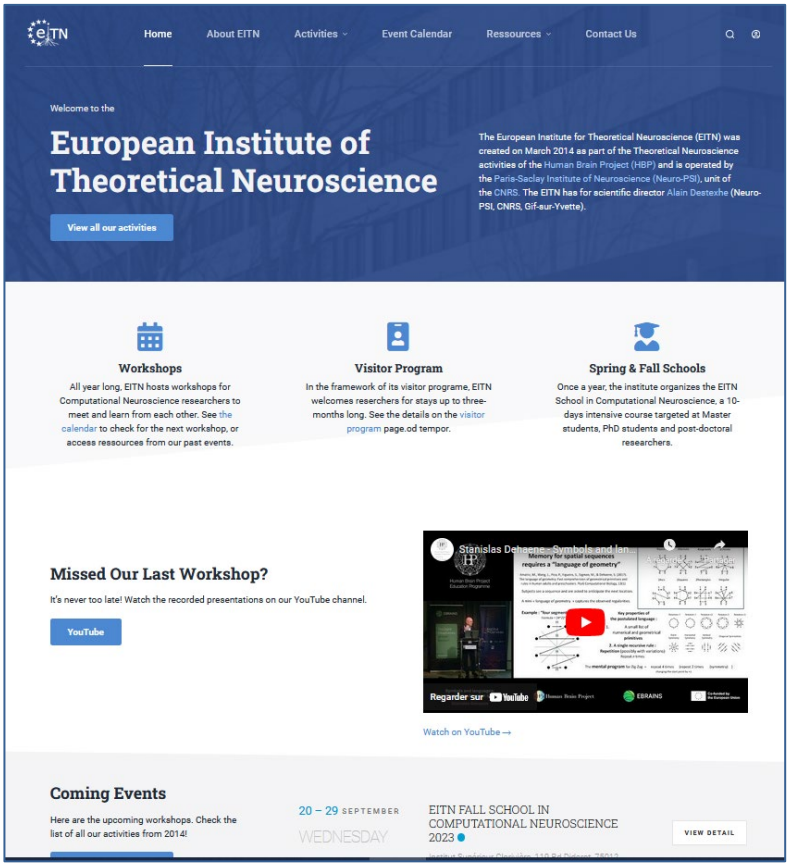

Figure 5: EITN web site

EITN continues the communication with Twitter/X in order to increase the audience of publications, grow our communities and to obtain feedback from the EITN workshops.

EITN participated in the organisation of a round table (in person and remote) “Building AI for humanity” in Paris, on 19 April 2022 (Figure 6). Artificial intelligence technologies are becoming increasingly powerful and pervasive. How can we ensure that these developments move us in a direction that is positive for humanity? This panel event was an opportunity to hear from and pose questions to technologists in leading roles within Google, Facebook and at the academic/industry interface. Moderated by Kathinka Evers, lead neuroethicist at the Human Brain Project, the goal was to generate a dialogue between the public and leaders in the AI community.

Figure 6: Announcement of the public round table “Building AI for humanity”

5. Looking forward

The EITN has fulfilled its program during the last phase of The Human Brain Project and successfully taken care of the organization of workshops, the visitor program, the Fall Schools in Computational Neuroscience, and other dissemination activities.

In 2021, the EITN moved to a new building and occupied permanent office space equipped with computers, visual-audio devices, and access to meeting rooms in NeuroPSI, which is adjacent to the NeuroSpin brain imaging institute. The two institutes constitute an important hub for the HBP, and both are partners in new EBRAINS 2.0 proposal in the framework of HORIZON-INFRA-2022-SERV-B-01 call.

The EITN will continue motivating theoreticians and experimental neuroscientists to use the EBRAINS platforms. During more than 10 years of HBP-EBRAINS project the EITN formed a faculty of theoreticians and computational neuroscientists who will continue the collaborations, participation in EITN research and educational activities. The EITN is well-known in the field of theoretical and computational neuroscience and plan to participate to the general outreach activities for EBRAINS, playing a role in ESFRI and the national hubs of EBRAINS.