

CONFERENCE AGENDA





Venue: Thessaloniki Concert Hall, M2



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Venue:

Thessaloniki Concert Hall, M2





Thessaloniki Concert Hall, Martiou 25 & Paralia, Thessaloniki 546 46 Building B



WELCOME

Message By the Conference Chairs

Dear Members and Prospective Conference Attendees,

The Society of Applied Neuroscience, in cooperation with the Aristotle University of Thessaloniki, have the great pleasure to welcome you to the SAN 2022 Conference, which will be held in Thessaloniki, Greece, on 15-17 September, 2022.

We cordially invite each of you engaged in studies of Neurosciences, to participate in SAN 2022 Conference. Apart from the highly promising scientific program, there will also be a lively social program, which will give our guests the opportunity to enjoy the hosted city, Thessaloniki.

Besides, we feel confident than you will enjoy SAN 2022 both scientifically and socially, as one of our main purposes is to give the chance to all colleagues to establish new fruitful international collaborations, in areas of mutual academic and clinical interests. We also believe that it will be a wonderful chance for you, to meet old friends and make new ones.





15-17 September 2022

PROGRAM IN DETAIL

Venue: Thessaloniki Concert Hall Thessaloniki, Greece





Conference Programme

Thursday, SEPTEMBER 15

	HALL 1	HALL 2	HALL 3
08:00-10:00		REGISTRATION	
10:00-12:00	WORKSHOP 1 From space medicine to clinical practice: A hands on workshop towards beyond the art rehabilitation protocols	WORKSHOP 2 fNIRS	
12:00-12:30		BREAK	
12:30-14:00	WORKSHOP 1 Cont'd (practical session)	WORKSHOP 2 Cont'd (practical session)	
14:00-15:30		BREAK	
15:30-17:30	WORKSHOP 3 Exploring Affect in Medical Education and Training	WORKSHOP 4 Importance of Neurobiofeedback Treatment in Alcohol and Substance Abuse	
17:30-18:00	BREAK		
18:00-18:30	OPENING		
18:30-19:30	KEYNOTE 1 - Talr	na Hendler: How does the brain ta	lk with our mind?
19:30-21:00		WINE RECEPTION	

	HALL 1	HALL 2	HALL 3
08:00-09:00		REGISTRATION	
09:00-11:00	Linking motor and social deficiencies in developmental disorders. Hila Gvirts and Anat Dahan	SYMPOSIUM 2: Clinical Applications of Neurophysiology in the Management of	SYMPOSIUM 1: SHAPES - Shaping a Pan-European Technological Ecosystem for Active and Healthy Ageing
	Classification of ADHD Using Machine Learning Algorithm based on Riemannian Geometry. Anat Dahan, Chen Ryder, Zeev Volkovivh, Lior Israelov and Yaakov Fain	Neuromusculoskeletal Patients	
	Validating "Qool City" e- Training Tool for People with Intellectual Disabilities in Greece. Vasileia Petronikolou, Anastasia Mparmpoudi, Niki Pandria, Panagiotis Antoniou and Panagiotis Bamidis		
	Validating the Short Arm Human Centrifuge Training in healthy and patient population cohorts. Christos Frantzidis, Ilias Machairas, Evangelia Stanitsa, Smaranda-Nafsika Ketseridou, Xrhstos Giantsios, Anastasia Mournou, Spyros Roumeliotis, Anna Nikolaidou, Sotiria Gilou, Panagiotis Bamidis and Chrysoula Kourtidou- Papadeli		
	A linear mixed effect model analysis of response latency and accuracy in naming: The FLAME project.		
	Utilizing a multilayer network approach to unravel cognitive hierarchy. Evangelos Paraskevopoulos, Nikolas Chalas, Alexandra Anagnostopoulou and Panagiotis Bamidis		
11.00 11.20		DDEAK & DOCTED SECSION 1	

	HALL 1	HALL 2	HALL 3	
11:00-11:30		BREAK & POSTER SESSION 1		
	Assessing the effect of respiratio brain-computer interfaces. Jana Fehring, Alexandros Christop	n phase modulation in the analysis	s of brain activity in real-time	
	The effects of theta/beta ratio no Stefanie Enriquez-Geppert, Jarosh	eurofeedback on different theta ne av Krc, Hanneke van Dijk and Martij	tworks. in Arns	
	Investigating the Brain Reactivity Arbesa Gashi Gashi, Christos Ster	y of Young Adults to Emotional Stin giadis, Altina Bimbashi and Manous	nuli: an EEG study. sos Klados	
	Design and prototyping Brain Co Gregory Kalogiannis and George	mputer Interfaces using embeddec Hassapis	systems and System-On-Chips.	
	Multi-sensor data fusion for neu exoskeletal soft robotics device. Vasiliki Fiska, Alkinoos Athanasion Katsonis, Panagiotis D. Bamidis a	Multi-sensor data fusion for neuro-rehabilitation of the human hand: system architecture of an exoskeletal soft robotics device. Vasiliki Fiska, Alkinoos Athanasiou, Konstantinos Mitsopoulos, Konstantina Lamprou, Georgios Katsonis, Panagiotis D. Bamidis and Alexander Astaras		
	Decision-Making and Response Inhibition in Abstinent Opiate Users. Elena Psederska, Kiril Bozgunov, Dimitar Nedelchev, Georgi Vasilev and Jasmin Vassileva			
	Multisensory plasticity induced by musical reading training in young and older adults. Evangelos Paraskevopoulos, Nikolas Chalas, Alexandros Karagiorgis, Maria Karagianni, Charis Styliadis and Panagiotis Bamidis			
	Exploiting of EEG-BCI for boostin Lorenzo Marin, Claudio Mulatti al	g reading ability: a pilot feasibility nd Andrea Caria	study on healthy subjects.	
11:30-12:30	KEYNOTE 2 - Dario Farina:	Neural Control of Movement: A M	lotor Neuron Centric View	
12:30-13:30	Neuroplastic effects of physical and cognitive training in adults with Down Syndrome. Alexandra Anagnostopoulou, Charis Styliadis, Panagiotis Kartsidis, Evangelia Romanopoulou, Vicky Zilidou, Chrysa Karali, Maria Karagianni, Manousos A. Klados, Evangelos Paraskevopoulos and Panagiotis Bamidis	Neurophysiological fingerprints of motor and cognitive decline in Parkinson's disease. Jason da Silva Castanheira, Alex Wiesman and Sylvain Baillet	Insights during development trials of the NeuroSuitUp platform: user experience and perception of robotics. Apostolos Praftsiotis, Konstantinos Mitsopoulos, Konstantinos Kasimis, George Lyssas, Niki Pandria, Vasileia Petronikolou, Vasiliki Fiska, Panagiotis Antoniou, Alexander Astaras, Ioannis Magras, Alkinoos Athanasiou and Panagiotis Bamidis	

	HALL 1	HALL 2	HALL 3
12:30-13:30	Beta-band cerebro-cerebellar connectivity during emotional face processing in adolescents with autism spectrum disorder. Konstantinos Tsilimparis, Charis Styliadis, Alexandra Anagnostopoulou, Georgia Kioselaki, Rachel Leung, Elizabeth Pang, Panagiotis Bamidis and Christos Papadelis	Predictive biomarkers in eye dynamics. <i>Miriam Reiner</i>	Preliminary findings on the Virtual Reality Cognitive Gaming based on Brain Computer Interfacing. Marios Hadjiaros, Sofia Sarri, Kleanthis Neokleous, Andria Shimi, Marios Avraamides and Constantinos Pattichis
	Effective cerebro-cerebellar connectivity subserving emotional face processing in adolescents with autism spectrum disorder. Georgia Kioselaki, Charis Styliadis, Alexandra Anagnostopoulou, Konstantinos Tsilimparis, Rachel Leung, Elizabeth Pang, Panagiotis D. Bamidis and Christos Papadelis	Measuring dopamine activity in psychosis-proneness: The Eye Blink Rates method. Aristea Ladas	A Systematic Review towards a Decision Support System for Holistic Tinnitus Treatment. Michail Sarafidis, Ourania Manta, Konstantinos Bromis, Eleftheria Vellidou, Dimitrios Kikidis, Winfried Schlee and Dimitrios Koutsouris
	Examining Functional Connectivity of Default Mode Network in Schizophrenia due to Cognitive and Physical training. Christina Plomariti, Christos Frantzidis, Anastasios Siountas, Ioannis Nimatoudis and Panagiotis Bamidis	Tau Protein in the Retina. Umur Kayabasi	Assessing usability of MedMoriApp, a mobile health app for the improvement of treatment adherence. Ángel García-Pérez, Stefan Anca, Marta Godoy-Giménez, Antonio González-Rodríguez, Ana B. Vivas, Laura Estéban, Luis J. Fuentes, Victoria Plaza, Michael Molina, Fernando Cañadas, Angeles Estévez and Pablo Sayans-Jiménez

	HALL 1	HALL 2	HALL 3
13:30-15:00	BREAK & POSTER SESSION 1		
	Improving the performance of non-invasive Brain-Computer interfaces utilizing Riemannian geometry: Comparison of different Machine Learning pipelines, Deep and Transfer Learning models. Alexandros Christopoulos, Jana Fehring, Jaroslav Krc, Fabien Lotte and Stefanie Enriquez-Geppert		
	Neuroplastic effects of physical and cognitive training during a Mismatch Negativity paradigm in Down Syndrome adults. Panagiotis Kartsidis, Alexandra Anagnostopoulou, Charis Styliadis, Evangelos Paraskevopoulos, Vicky Zilidou, Maria Karagianni, Evangelia Romanopoulou and Panagiotis Bamidis		
	Differential outcomes, recognitio Ángel García-Pérez, Nicolás Ferná Giménez, Fernando Cañadas, Pab	on of complex facial emotions and t ández-Villarruel, Antonio González-R olo Sayans-Jiménez and Ángeles Ferr	theory of mind: a pilot study. Rodríguez, Marta Godoy- nández Estévez
	A deep learning method detectin signals. Kyriaki Christodoulidou, Anastasio	n <mark>g obstructive sleep apnea through</mark> os Konstantinos Fotakis and Efstathi	cepstrum analysis of EEG
	Intrinsic functional connectivity Kathrin C. J. Eschmann, Ashvanti	predicts how curiosity and predicti Valji, Vera Dehmelt, Duarte F. M. M.	on errors enhance memory. Pereira and Matthias J. Gruber
	Audiomotor synchronization and executive functions in athletes with different levels of expertise. Anastasia Kovaleva, Vladislav Turnaev and Vladimir Kasatkin		
	Neuroplasticity induced by physical exercise training in Parkinson's Disease patients. Vasilleios Rafail Xefteris, Charis Styliadis, Alexandra Anagnostopoulou, Panagiotis Kartsidis, Evangelos Paraskevopoulos, Manousos A. Klados, Vicky Zilidou, Maria Karagianni and Panagiotis Bamidis		
	VR exergaming for knee osteoart devices. Christos Mouzakis, Dimitrios Verv Nikolopoulos, Ioannis Kompatsiar Varella and Panagiotis Bamidis	t hritis patients at home using Oculu reridis, Dimitrios Tsaopoulos, Stavros ris, Evangelia Romanopoulou, Ioann	us Quest 2 and Myo wireless s Portokalidis, Spiros a Dratsiou, Annita
15:00-16:15	INVITED SPEECH 1 - Andreas A. Ioannides: A proposal for sleep staging evolution which improves relevance to sleep physiology, while preserving continuity with earlier records INVITED SPEECH 2 - Kostas Nizamis: The hand in Duchenne muscular dystrophy: enabling rehabilitation		ing evolution which improves lier records ar dystrophy: enabling
16:15-16:30	STRETCH BREAK		
16:30-18:00	WORKSHOP 6 Neuroanatomy with Cadavers: understanding basic neuroscience	SYMPOSIUM 3 Clinical applications of brain mapping	WORKSHOP 5 Tin-TRAC training workshop: developing Reusable Learning Objects (RLOs) with Tinnitus assessment and treatment as a use case scenario
18:00-19:00		SAN MEETINGS	

	HALL 1	HALL 2	HALL 3
08:00-09:00		REGISTRATION	
09:00-11:00	In vivo imaging of the rat brain utilizing motion-controlled ultrasonic tomography. Stamatios Amanatiadis, Chryssa Bekiari, Georgios Apostolidis, Ioannis Grivas, Nikolaos Kantartzis, Georgios Papadopoulos and Georgios Karagiannis	SYMPOSIUM 4 DRUG CLINICAL TRIALS AND COGNITIVE SAFETY ASSESSMENT	SYMPOSIUM 5: ThessRoboGlove Forum – Thessaloniki wearable robotics gloves and apparel knowledge exchange and cooperation Forum
	Monitoring short-time novelty of Electrocardiogram signals for epileptic seizure anticipation using Unsupervised Anomaly Detection. Apostolos Karasmanoglou, Marios Antonakakis and Michalis Zervakis		
	Exploiting HFO networks to detect epileptogenic tissue. <i>Christos Stergiadis</i> <i>and Manousos A. Klados</i>		
	Understanding the Impact of Zygosity on Personality: A Twin Study Exploring the Common Basis of the Five Factor Model. Sofija Paunic and Manousos A. Klados		
	Attentional Bias Modification with EEG in low and high self esteem individuals- Word valence as influence on expectation conflict. Matthew Pears, Stathis Konstantinidis and Simon Goodson		
	Future Directions in Neuroplasticity and Music Research. Maria Agapaki, Efthymios Papatzikis, Rosari Naveena Selvan, Varun Pandey and Fathima Zeba		

	HALL 1	HALL 2	HALL 3
11:00-11:30		BREAK & POSTER SESSION 2	
	Developing clinical phenotype Christina Lamproudi, Apostolos Adamopoulos, Maria Hadjinico	- driven neurofeedback serious game Praftsiotis, Ioannis Papantoniou, Ath Iaou and Alkinoos Athanasiou	e for ADHD. Danasios Papias, Adam
	Telediagnosis of executive fund control. Jaroslav Krc, Maximilian Bruchr Geppert	c tions by new test battery utilizing d mann, Sebastiaan Mathot, Tomas Kas	ual mechanisms of cognitive
	Digital Twins in Human Brain: Anastasios Loukas Sarris, Efstat Bamidis	Challenges and Opportunities. hios Sidiropoulos, Evangelos Paraske	vopoulos and Panagiotis
	Can Subject-Dependent Neuro term memory. <i>Germán Campos-Arteaga, Serg</i> <i>Eugenio Rodríguez</i>	feedback modulate memories? Effec io Ruiz, Deysha Poyser, Ricardo Mora	cts of Neurofeedback on long- les, Ranganatha Sitaram and
	Multisensory integration and t Charis Styliadis, Alexandra Anag	he cerebellum. gnostopoulou, Panagiotis Bamidis an	d Evangelos Paraskevopoulos
	Cortical networks underpinnin Charis Styliadis, Alexandra Anag Karagianni, Athanasia Liozidou, and Georgios Papazisis	g anhedonia in major depressive dis gnostopoulou, Niki Pandria, Katerina . Evangelos Paraskevopoulos, Theodo	o rder via the Doors task. Katsouli, Christos Bakas, Maria Isia Livanidou, Panagiotis Bamidis
	Gliomechanics. Abraham Tsitlakidis, Elias C. Aif Panagiotis Selviaridis and Nicol	antis, Aristeidis Kritis, Anastasia S. Tsi as Foroglou	ingotjidou, Angeliki Cheva,
	Developing a modular power s Konstantinos Chasapis, Athanas Terzopoulos, Alexander Astaras,	upply for a wearable robotic device sios Papias, Konstantinos Mitsopoulos , Alkinoos Athanasiou, Nikolaos Pitsic	for neural rehabilitation. s, Apostolos Praftsiotis, Nikos anis and Panagiotis Bamidis

11:30-12:30

KEYNOTE 3 - Sylvain Baillet: Neurophysiological signaling of brain predictive mechanisms.

	HALL 1	HALL 2	HALL 3
12:30-13:30	Combining cognitive training and non-invasive brain stimulation to enhance treatment outcomes. Anika Poppe, Franziska Ritter, Leonie Bais, James Pustejovsky, Marie-José van Tol, Branislava Ćurčić-Blake, Gerdina Pijnenborg and Lisette van der Meer	The Influence of Emotion on Subjective Pain Experience, Self-Reported Affect and Physiological Responses Under Heat Pain Stimulation. Maria Velana, Steffen Walter and Harald Traue	WORKSHOP 5 Cont'd: Tin-TRAC training workshop: developing Reusable Learning Objects (RLOs) with Tinnitus assessment and treatment as a use case scenario
	Affecting cognitive performance in MS by transcranial alternating current stimulation (tACS); pilot study. Branislava Curcic-Blake, Nena Lejko, Jon D. Laman, Jan F. Meilof, Dorothea J. Heersema, Inge Zijdewind, Jacoba M. Spikman, Remco J. Renken, Natasha M. Maurits, Christoph S. Herrmann and Andre Aleman	The Impact of Stress in Knowlwdge Transfer And Entropy. Ioannis Konstantinidis and Spyros Avdimiotis	
	Investigating resting-state brain alterations in smokers after biofeedback and neurofeedback training. Niki Pandria, Alkinoos Athanasiou, Charis Styliadis, Nikos Terzopoulos, Konstantinos Mitsopoulos, Evangelos Paraskevopoulos, Ioannis Nimatoudis, Paraskevi Argyropoulou-Pataka and Panagiotis Bamidis	The Effects of Relaxation on Psychophysiological Outcomes in Healthy Adults After Exposure to Cold Pressor Test. Maria Velana, Silvia Capellino and Gerhard Rinkenauer	
	Investigation of microstates from EEG signals of tip-pinch and wrist flexion/extension movement. Supreeth S Karan, Harsh Sharma, Ayushi Kumari Agrawal, Kavita Vemuri	Sleep quality and anxiety levels among Greek healthcare professionals in COVID-19 pandemic. Anna Nikolaidou, Evangelia Stanitsa and Christos Frantzidis	

	HALL 1	HALL 2	HALL 3
13:30-15:00		BREAK & POSTER SESSION 2	
	Neuroplastic effects of Multise Evangelos Paraskevopoulos, Ni Bamidis	e <mark>nsory vs. Unisensory training on n40</mark> kolas Chalas, Maria Karagianni, Vasile	10. eia Petronikolou and Panagiotis
	Tele-neurology for neurodeger Efthalia Angelopoulou, Dionysia Papatriantafyllou, Dimosthenis Anastasia Kaliontzoglou, Georg and Sokratis Papageorgiou	nerative diseases in Greece: potentia a Kontaxopoulou, Stella Fragkiadaki, E Pavlou, Christos Koros, Efstratia-Mar ios Koukoulas, Christos Roilos, Leonid	l impact on medical education. Evangelia Stanitsa, John ia Georgopoulou, Eleni Kerazi, as Stefanis, Panagiotis Bamidis
	Hamartin offers cortical neuro model. Konstantinos Themistoklis, Kon Papasilekas	ns tolerance to ischemic insults. Prel i stantinos Melanis, Konstantinos Vekre	iminary results in a rat in vivo
	Cognitive decline prognosis in treatment on cortical reorgani Charis Styliadis, Ioannis Nikolai Kartsidis, Alexandra Anagnosta Petronikolou, Evangelos Parask and Panagiotis Bamidis	multiple sclerosis: effectiveness of a zation. dis, Vasiliki Zilidou, Antonios Billis, Ma poulou, Giorgos Petridis, Alexandros I revopoulos, Athanasia Liozidou, Vahe I	computerized cognitive training aria Karagianni, Panagiotis Moraitopoulos, Vasileia Poghosyan, Nikolaos Grigoriadis
	Psilocybin-assisted neurofeedl of executive functioning: A pro Morten Peter Lietz, Fiachra O'H Geppert	back (PANF) in a naturalistic microdo oof of principle study. liggins, Raquel Castillo Bihler, Jaroslav	se setting for the enhancement Krc and Stefanie Enriquez
	Human muscle state machine George Lyssas, Konstantinos M Dimitris Zantzas, Thanos Arvan and Panagiotis Bamidis	using electromyography classificatio itsopoulos, Apostolos Praftsiotis, Niki itidis, Alexander Astaras, Anestis Kalfa	n with machine learning. Pandria, Nikos Terzopoulos, as, Alkinoos Athanasiou
	Exploring gender-related diffe Niki Pandria, Alkinoos Athanas Panagiotis Bamidis and Stergio	r ences in smoking cessation motivati iou, Georgios Papazisis, Charis Styliad s Kaprinis	on during COVID-19 pandemic. is, Christoforos Zidiridis,
15:00-16:15	INVITED SPEECH 3 - PETRA RIT Multilevel Health Data INVITED SPEECH 4 - Grigorios H neuroplasticity and neuroinfla Cellular and molecular approa	TER: Virtual Brain Cloud: Enabling Co (yriatzis: Applications of neuropeptic mmation occurring in neurodegenera ch.	omplex Simulations with les and their receptors in ative diseases; current data.

	HALL 1	HALL 2	HALL 3
16:15-16:30		STRETCH BREAK	
16:30-18:00	LLM Care Symposium: Practitioners and Stakeholders of cognitive and physical enhancement	SYMPOSIUM 6 Updates on the Frontal Midline Theta (Fmθ) Neurofeedback (NF) Protocols for Improving Executive Functions	SYMPOSIUM 7 Bioinformatics and Neuroinformatics
18:00-19:00		SAN DISCUSSIONS AND CLOSING	





15-17 September 2022

KEYNOTE SPEAKERS

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Venue: Thessaloniki Concert Hall, M2



Sylvain Baillet Canada

Speech title: Neurophysiological signalling of brain predictive mechanisms

Sylvain Baillet is Professor of Neurology & Neurosurgery, Biomedical Engineering and Computer Science at the Montreal Neurological Institute, McGill University, and Tier-1 Canada Research Chair in Neural Dynamics of Brain Systems. His main research contributions are in brain imaging methods and multimodal, quantitative electrophysiology, with emphasis on magnetoencephalography (MEG) for time-resolved brain imaging.

These advances also applied to EEG – a technique widely used in research, clinics, and wearable devices. Through international collaborations, he leads impactful open-source software developments (Brainstorm: 25,300 user accounts), efforts for data harmonization (MEG-BIDS) and data sharing (the Open MEG Archive/OMEGA). Sylvain trained 130 students who produced 300 publications.

He obtained a total of \$34M in research funding in his career so far. As program leader, Sylvain founded 2 MEG core units in Canada and the US; he was Director of the McConnell Brain Imaging Centre (MNI, 2013-17) and is now the Associate Dean for Research of McGill's Faculty of Medicine, the top research-intensive medical school in Canada.

https://www.mcgill.ca/neuro/sylvain-baillet-phd



Prof. Dr. Dario Farina

Chair of Neurorehabilitation Engineering Department of Bioengineering Imperial College London, London, UK

Speech title: Neutral Control of Movement: A Motor Neuron Centric View

Dario Farina, Professor and Chair in Neurorehabilitation Engineering, Department of Bioengineering, Imperial College London, London, UK

Dario Farina is currently Full Professor and Chair in Neurorehabilitation Engineering at the Department of Bioengineering of Imperial College London, UK. He has previously been Full Professor at Aalborg University, Aalborg, Denmark, (until 2010) and at the University Medical Center Göttingen, Georg-August University, Germany, where he founded and directed the Department of Neurorehabilitation Systems (2010-2016). Among other awards, he holds a Honorary Doctorate degree in Medicine from Aalborg University, Denmark, and has been the recipient of the IEEE Engineering in Medicine and Biology Society Early Career Achievement Award, the Royal Society Wolfson Research Merit Award, the IEEE EMBS Technical Achievement Award. His research focuses on biomedical signal processing, neurorehabilitation technology, and neural control of movement. Professor Farina has been the President of the International Society of Electrophysiology and Kinesiology (ISEK) (2012-2014) and is currently the Editor-in-Chief of the official Journal of this Society, the Journal of Electromyography and Kinesiology, and an Editor for many other international Journals, including Science Advances and IEEE Transactions on Biomedical Engineering. Professor Farina has been elected Fellow IEEE, AIMBE, ISEK, EAMBES, AAIA, Sigma Xi.



Talma Hendler Tel Aviv University, Israel

Speech title: How does the brain talk with our mind?

Dr Talma Hendler (MD PhD); Full Professor of psychology, psychiatry and neuroscience at Tel Aviv University, and the founding director of the Sagol Brain Institute, Tel Aviv Sourasky Medical Center; Israel. Dr Hendler has pioneered the use of functional-MRI and its combined acquisition with EEG in Israel, by establishing the first research facility for studying human brain functions non-invasively (https://www.cbf-tlv.com/).

Under her two decade directorship the institute has grown to include several research pillars using computational neuroimaging, sleep-research, immersive neuroscience and functional neurophysiology and psychoactive labs. Throughout the years the Sagol Brain Institute has become a world-model for how to rapidly translate basic research ideas into clinical utility in brain-medicine, and in biomed commercial initiatives such as the spinoff company GrayMatters Health<u>https://graymatters.health</u>.

In her own lab, Dr Hendler has excelled in both theoretical formulation and methodological development in cognitive-affective neuroscience and in brain computer interface approaches using multi-modal imaging and machine learning. She has been known for her critical contribution to major scientific questions in the field of brain and emotions with a strong focus on stress and trauma.

Using multi-level measurements (neuroimaging, behavioral and biological) along with naturalistic dynamic tasks (movies, music, interactive games and VR) in longitudinal designs, her work revealed neurobehavioral markers for individual differences in emotional experiences and in the effect of traumatic stress, untangling cause and effect of life adversities.

This work resulted in >200 peer-reviewed papers and six patents and was supported by numerous national and international grants. Dr Hendler won several prizes including, more recently, the prestigious voucher of a leading scientist in Europe by the flagship EU program of Human Brain Project.



15-17 September 2022

INVITED SPEAKERS

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Venue: Thessaloniki Concert Hall, M2



Andreas A. Ioannides

Lab. For Human Brain Dynamics AAI Scientific Cultural Services Ltd Nicosia, Cyprus

Speech title:

Contemplating a new (sleep staging) system describing brain activity without losing contact with the knowledge derived from the classical ways

Prof. Andreas A. Ioannides was born in Morphou, Cyprus. He studied Physics (1970-73) and completed his PhD, both at Surrey University UK (1973-76), continuing with research in nuclear Physics until 1988. Since 1986 he started research in cybernetics and biology that by 1989 narrowed its focus onto magnetoencephalography. The initial emphasis on basic theory and mathematical analysis techniques lead also to development of experimental protocols and dedicated hardware (freely donated to the community with some nowadays installed in MEG systems world-wide). Prof. Ioannides established and headed theoretical teams and set up functional neuroimaging laboratories in international centers of excellence in the UK (Open University; 1989 -98), Germany (Institute of Medicine, Research Center Juelich; 1994-8) and Japan (Brain Science Institute, RIKEN; 1998 – 2009). Fifteen PhD students and researchers who started their post-doc careers with Prof Ioannides are now leading scientist, some heading international centers of excellence in Europe, North America and Asia.

Prof. Ioannides returned to Cyprus in 2009 as the CEO of AAI Scientific Cultural Services Ltd (AAISCS) and Chief Scientist of AAISCS's Laboratory for Human Brain Dynamics (LHBD-C). AAISCS is a private company that continues the basic neuroscience research of previous years with the additional goal of using the resulting knowledge to develop new services and products with cheaper and widely accessible technology. The company also provides support for experiments and data analysis in Electroencephalography and Magnetoencephalography. For much of the last decade Prof. loannides research emphasized three main areas of basic and applied research: the understanding of sleep processes and how these influence health, using the results of basic research to advance new non-invasive, non-pharmacological methods of intervention with strong emphasis on neurofeedback and the development of mass screening methods for identifying strengths and weaknesses of pupils in pre-school or in the first year of elementary school. The most recent work on sleep from LHBD-C focused on the first cycle of sleep and periods before Rapid Eye Movements (REM) sleep. These periods were found in animal experiments to be the periods with the highest density of ponto-geniculo-occipital (PGO) waves which have not yet conclusively identified in human and are periods difficult to fit into the classical sleep staging criteria. It was found that many of the related difficulties in classical sleep staging are easier to tackle with the introduction of a putative new sleep stage, REMO, characterized by high arousal and well-defined properties in the EEG and other auxiliary channels, particularly the heart rate variability (Ioannides, Orphanides and Liu, Current Research in Physiology, 2022).



Grigorios Kyriatzis

Postdoctoral Researcher, Laboratory of Pharmacology, Department of Medicine, Democritus University of Thrace

Speech title:

Applications of neuropeptides and their receptors in neuroplasticity and neuroinflammation occurring in neurodegenerative diseases; current data. Cellular and molecular approach

Dr. Grigorios Kyriatzis is a Molecular Biologist-Geneticist and Neuroscientist. He has conducted research at Karolinska Institutet in Sweden and University of Bergen in Norway. His former research at the Institute of Neurophysiopathology in Marseille, France included the study of neuropeptide receptors in neuroinflammation and neuronal death following experimentally induced status epilepticus.

He is currently a postdoctoral researcher at the Laboratory of Pharmacology of the Department of Medicine, Democritus University of Thrace. His research focuses on neuroinflammatory processes and their impact on neurodegeneration, as well as drug target and biomarker discovery in CNS diseases via a machine learning-aided pipeline.



Kostas Nizamis

Assistant professor in Multidisciplinary Design at the University of

Speech title:

The hand in Duchenne muscular dystrophy: enabling rehabilitation

My name is Kostas Nizamis (1988 Kavala, Greece) and I am an Assistant Professor in Multidisciplinary Design at the Design, Production, & Management (DPM) department at the University of Twente. I graduated as electrical and computer engineer (M.Eng) from the Democritus University of Thrace in Xanthi, Greece. After that, I acquired my degree in Biomedical Engineering (MSc.) at the University of Twente. Between November 2014 and February 2019, I performed my Ph.D. research in the department of Biomechanical Engineering, at the University of Twente, in Symbionics 1.3: Intention Amplifying in Hand Orthoses. In this project, we developed and tested a myocontrolled hand exoskeleton for people with Duchenne muscular dystrophy (https://www.youtube.com/watch?v=jpHjlFM0t3Y).

My current research interests involve the application of multidisciplinary design approaches and Systems Engineering tools and methods in developing and validating rehabilitation technologies to address high-impact societal problems.

I am currently serving as the vice-chairman of the Optimus Association (<u>https://www.utwente.nl/en/et/dpm/optimus/</u>) of the DPM department of the University of Twente. Additionally, I am the Director of Transfer for the Non-Profit Organization Authentia.



Petra Ritter

Director of the Brain Simulation Section at Charité Universitätsmedizin Berlin

Speech title:

Virtual Brain Cloud: Enabling Complex Simulations with Multilevel Health Data

Petra Ritter heads the Brain Simulation Section at the Charité University Medicine Berlin and Berlin Institute of Health. Her research focus is on integrating neuroimaging and computational neuroscience to discover mechanisms of brain function and dysfunction. She serves in the leadership of large EU projects such as Virtual Brain Cloud & eBRAIN-Health and is directing EBRAINS Health Data Cloud. Petra Ritter studied medicine at the Charite where she later had been appointed a Johanna Quandt lifetime Professorship for Brain Simulation. Since 2017, she is Director of the Brain Simulation Section at Charité Universitätsmedizin Berlin.



15-17 September 2022

WORKSHOPS

WWW.SAN2022.0RG

Venue: Thessaloniki Concert Hall, M2





Hall 1



WORKSHOP

Thursday 15, September Time: 10.00-12.00

From space medicine to clinical practice: A hands on workshop towards beyond the art rehabilitation protocols.

Organisers: Chrysoula Kourtidou-Papadeli, Christos Frantzidis, Evdokimos Konstantinidis, Christina Plomariti

It is well known that bed confinement and inactivity lead to detrimental consequences in many physiological systems, like the cardiovascular and the musculoskeletal. The main reason for this is the ineffective use of the gravity loads administered to the body in these situations. Several countermeasures have been proposed to mitigate the physiological multisystem deconditioning

caused by bed confinement and inactive lifestyle. Among them, the short-arm human centrifuge (SAHC) has been proposed as a realization of Artificial Gravity / AG, but most of its applications are targeted for use in space.

The focus of this workshop will be to 1) present the latest advances in the fields of space medicine and related countermeasures, 2) discuss how space-related research could be transferred to the clinical practice for rehabilitation and improving physical health and wellbeing, 3) perform a hands-on workshop on integrating space-related research in everyday medical practice, through participatory design and co-creation approaches.

It will consist of presentations on the following topics:

- Presentation of the Vitalise project (aims, methodology, research infrastructures)
- Latest advances on countermeasures for mitigating detrimental microgravity effects.

• Infrastructures of the human centrifuge (a joint presentation including the infrastructures of all the different labs participating in the workshop)

• Use of artificial gravity training on healthy population

Applications in rehabilitation

• Presentation of the Vitalise project: Protocol for using the SAHC for rehabilitation in stroke patients

• Future aspects of the centrifuge

• Co-creation session: At the last half hour of the workshop the attendees will be given the opportunity to share among them and with the organizers of the workshop their ideas on the following topics. At first, a canvas will appear where everybody will be able to write their ideas and at the final 10 minutes a discussion will take place based on the created canvas o Other applications of space-related countermeasures in rehabilitation and medical practice

o Use of the space-related countermeasures for physical training and well-being o Combination of the space-related countermeasures with other rehabilitation techniques

PRESENTERS

Chrysoula Kourtidou-Papadeli, Director of the AeroMedical Center of Thessaloniki & Greek
AeroSpace Medical Association – Space Research (GASMA-SR)
Evdokimos Konstantinidis, European Network of Living Labs, Brussels, Belgium, Medical
Physics and Digital Innovation Laboratory, School of Medicine, Aristotle University of
Thessaloniki, Thessaloniki, Greece
Christina Plomariti, Medical Physics and Digital Innovation Laboratory, School of Medicine,
Aristotle University of Thessaloniki, Thessaloniki, Greece
Christos Frantzidis, Medical Physics and Digital Innovation Laboratory, School of Medicine,
Aristotle University of Thessaloniki, Thessaloniki, Greece
Despoina Petsani, Medical Physics and Digital Innovation Laboratory, School of Medicine,
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Despoina Petsani, Medical Physics and Digital Innovation Laboratory, School of Medicine,
Aristotle University of Thessaloniki, Thessaloniki, Greece
Ivana Rosenweig, Department of Neuroimaging, Sleep and Brain Plasticity Centre, Institute of
Psychiatry, Psychology and Neuroscience (IoPPN), King's College London (KCL), De Crespigny Park, Box
London, SE5 8AF, UK

7. Smaranda Nafsika Ketseridou, Medical Physics and Digital Innovation Laboratory, School of Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece

COCREATION FASCILITATORS

1. Christina Plomariti, Medical Physics and Digital Innovation Laboratory, School of Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece

2. Despoina Petsani, Medical Physics and Digital Innovation Laboratory, School of Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece

3. Vasileia Petronikolou, Medical Physics and Digital Innovation Laboratory, School of Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece

4. Smaranda Nafsika Ketseridou, Medical Physics and Digital Innovation Laboratory, School of Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece

ACKNOWLEDGEMENT

This workshop is funded by the European Union Horizon 2020 Research and Innovation Programmmes VITALISE (No. 101007990 - https://vitalise-project.eu/)







Hall 2

Thursday 15, September Time: 10.00-12.00



WORKSHOP fNIRS Workshop

Near-infrared spectroscopy (NIRS) is an imaging technique that uses light to measure muscle or cerebral oxygenation. One variant of this technique called functional NIRS (fNIRS) can be used to measure brain activity. fNIRS has become popular increasingly over the past years among researchers because of its wearability, portability and ease of use. Additionally, fNIRS is non-invasive and compatible with many other techniques such as EEG, tES and can provide complementary information.

fNIRS measures the brains hemodynamic response and local changes so it provides a relatively high spatial resolution. In this workshop we will discuss the basics of fNIRS and demonstrate how to get started with this technique using our devices.

ORGANIZER INFO

We will hold two sessions so more attendees can join and get to know the technique and our devices.

PER SESSION

- Duration: 90 minutes
- Number of attendees: 10-15, 50 euros registration fee
- Suitable for: Anyone who is interested in using fNIRS technique in research



OUTLINE

- Basics of fNIRS (10 min.)
- Practical considerations fNIRS experiment set up: study design, optode placement, data quality (15 min.)
- Multi-modality, synchronization and data analysis options (15 min.)
- Hands-on session: Device and Software Demo, Demo data collection (40 min.)
- Q & A: (10 min.)

SPEAKERS

Parivash Pourabbasi

- MSc. Biomedical Engineering
- Application Specialist at Artinis

Bauke Wiersma

- MSc. Human Movement Science
- Application Specialist at Artinis









Hall 1

Thursday 15, September Time: 15.30-17.30



WORKSHOP Exploring Affect in Medical Education and Training

P.E. Antoniou, S. Reppou, C. Plomariti, N. Pandria, A. Athanasiou, V. Kiosses, G. Ntakakis, I.Tsoupouroglou, P.D.Bamidis

Affect (emotional state) is understood to play a vital part in the learning process and in shaping learning, as it is linked to concepts such as motivation, interest, and attention. Oftentimes, learning occurs during an emotional episode; therefore, the connection between affect and learning provide some useful insight into how people learn. In addition, there is evidence of the influence and capability of digital tools such as Mixed, Virtual, and Augmented Reality (MR/VR/AR, commonly referred to as XR) for detecting and influencing the emotional state of users during learning activities. The aim of this hands-on workshop is to explore the concepts and applications of affective learning in

medical training and introduce its audience to the use of innovative, technology-oriented methods. A series of training scenarios implemented in virtual reality will be presented to the participants, who will have the opportunity to try them and then participate in an interactive session dedicated to exploring their affective states during the learning process. The presented training resources will include:

- Empathy training for healthcare professionals
- Surgical and/or neuroanatomy training
- Basic skills training (preparation for ECG, basic ECG reading skills, basic radiology skills)

During the first 30 minutes of the workshop, the projects that incited the creation of the training resources will be presented in brief, along with the rationale and key educational points behind each training scenario. For the next 45 minutes, the participants will be divided into groups where they will be given the opportunity to try firsthand at least one of the scenarios. After that, each group will be interviewed and complete a brief questionnaire in order to explore their affective state occurring during the training course. Finally, for the last 45 minutes the participants will be able to discuss together with the facilitators their experience and share ideas, with the use of a canvas, on using affect for more impactful learning in medical educational episodes.

ACKNOWLEDGEMENT

This work was supported by the ENTICE Erasmus+ Knowledge Alliance (612444-EPP-1-2019-1-CY-EPPKA2-KA) and the InAdvance Horizon 2020 project (H2020-SC1-BHC-2018-2020 No. 825750)









Hall 2

Thursday 15, September Time: 15.30-17.30

WORKSHOP

Importance of Neurobiofeedback Treatment in Alcohol and Substance Abuse

Tanju Surmeli, MD, BCN, IBQE-D, QEEG-D Psychiatrist

Substance Use Disorders (SUDs) include disorders related to the taking of a drug(s) of abuse (including alcohol). QEEG biomarkers has been shown to have good differential diagnostic capability for SUDs. Among the medical treatment methods used in the treatment of SUDs., medical drugs, psychotherapies, and detox programs are the most frequently used, but there is no cure. Alcohol and drug/addiction are registered in the regions of the brain with deep mechanisms by the conditioning method. When the person sees and thinks, or when he is stressed, it creates desire. The nucleus accumbens, the center of the brain's reward system, is overfilled with dopamine. The hippocampus briefly remembers this pleasurable event, and records it with the amygdala conditioning method. If a multi-faceted treatment view is not exhibited, problems of recurrence and inability to produce permanent solutions arise.

NF has been used successfully in numerous psychiatric disorders of ADHD, depression, anxiety, mTBI, Alcohol and Substance Abuse. The addict's brain is conditioned with the Neurobiofeedback treatment method, reducing the desire for the substance or completely eliminating the desire and use of the substance by ensuring that it is completely under control.

Learn the fundamentals of biomarkers findings in SUDs and be able to recognize characteristic marker analysis before neurofeedback treatment and during neurofeedback treatment. Develop a rationale intervention based on this assessment data which develops baseline NF treatment protocols for personalized medicine treatment model in SUDs.

LEARNING OBJECTIVES

To be able to use one of the non-medication treatments for Alcohol and Substance Abuse such as neurofeedback. If SUD patients don't get better with medication or other treatments, to learn more effective ways of treating SUDs. Learn how to use neurobiofeedback as a therapeutic tool.

GENERAL INFORMATION

Time of workshop: Half day (3 hours) (9 am to 12 pm)

Chair and Presenter: Tanju Surmeli, MD, BCN, IBQE-D, QEEG-D Psychiatrist

Title: Importance of Neurobiofeedback Treatment in Alcohol and Substance Abuse (SUDs)

Workshop Sub Topics:

- 1. General introduction
- 2. QEEG biomarkers for good differential diagnostic capability for SUDs
- 3. Role of craving in relapse of SUDs
- 4. The medical treatment methods used in the treatment of SUDs
- 5. Importance of Neurobiofeedback Treatment in SUDs
- 6. Importance of QEEG biomarkers and Neurobiofeedback Treatment in Dual diagnosis
- 7. Literature review of Neurofeedback studies in SUDs
- 8. Protocol development examples from literatüre and our clinical cases
- 9. Questions and Answers

REFERENCES

2nd Edition of Neurofeedback and Neuromodulation Techniques and Applications, Edited by Robert Cohen and James R. Evans, Chapter 11: Evidence supporting neurofeedback for adult psychiatric disorders, including Alcohol and Substance Abuse research by Tanju Surmeli for Elsevier (2022; in review)

Dr. Tanju Sürmeli, Psychiatrist

Director Healthy Living Center for Research and Education Istanbul, Turkey 34394 Tel: 00902123472208

Dr. Tanju Sürmeli received his Medical Doctor degree from Dokuz Eylül University in 1984 in Izmir, Turkey. He has completed Harvard Medical School's Global Clinical Scholars Research Training Program. He also completed a Research Fellowship in EEG and psychopharmacology at New York Medical College. He did post doctorate training in Family therapy at the Ackerman Institute for Family Therapy. He also worked at the Manic depression Foundation and Colombia-NYSPI under Prof Dr.

Ronald Fieve. He learned Hypnosis at the Milton Ericson Hypnosis Institute. He did his residency training in Psychiatry and Neurology at University of Connecticut/Institute of Living, Yale, and University of Texas, San Antonio. He is a board and ECFM certified psychiatrist. His associate professorship application is under review by the Turkish Higher Education Board's appointed jury for works reviewal. Upon returning to Turkey in 2001, he founded the Healthy Living Center for Research and Education. He is the founder of the Biofeedback, Neurofeedback and QEEG/ERP use in Psychiatry Foundation. He is the only BCN and QEEG certified psychiatrist in Turkey.



As well, he has numerous memberships (AMA, APA, AAPB, ISNR, SAN, BFE, ECNS) and teaching positions in international medical societies' workshops. He is also a reviewer for the Journal of Clinical EEG and Neurosciences, Psychiatry Research, Behavioural Neurology, Schizophrenia Research, and Journal of Child Psychology and Psychiatry, Neuro Biobehavioral reviews, Nature Scientific Reports,

NeuroImage, Journal of Alzheimer's Disease and Journal of Child Psychology and Psychiatry. Upon the request of the Swiss National Science Foundation, he reviewed as an expert reviewer, scientists' placebo controlled grant applications; in 2015 "Neurofeedback in Schizophrenia", in 2017 "Neurofeedback in Bipolar Disorder and Borderline Disorder", in 2018 scientists' "Neurofeedback in residual symptoms of Bipolar Disorder."

He is a board member for International QEEG Certification in US, was invited by the International Quantitative Board of Electrophysiology in US to be a QEEG board member for the 2015-2016 term and extended for 4 more years and elected as a president and a former Board member for the International Society for Neurofeedback and Research in US, and Board member for the Society of Applied Neuroscience in Europe. His Schizophrenia Case Study paper was awarded as a publication that, "in its consideration, has most significantly advanced the field of Neurofeedback in 2013."

He has authored textbooks or chapters on Psychiatry, QEEG and Neurofeedback, such as 2nd Edition of Neurofeedback and Neuromodulation Techniques and Applications, Edited by Robert Cohen and James R. Evans, Chapter 11: Evidence supporting neurofeedback for adult psychiatric disorders, including Alcohol and Substance Abuse research by Tanju Surmeli for Elsevier (2022; in review) and papers published in International Journals.

His research interests include QEEG, Neurofeedback in Substance abuse, MCI, Alzheimer's Disease, Vasculer Dementia, Down Syndrome, Mental Disability and Schizophrenia. He took part in the Turkey branch of the European Union's COST B27 proposal for the Electric Neuronal Oscillations (ENOC) and Cognition action program.

International Workshops, Symposiums/Workshop and Symposiums Faculty Positions

1.Clinical Electrophysiology as a biomarker diagnostic and treatment in Psychiatric setting; ECNS, Sept. 2018, Pittsburgh

2.QEEG and EEG Feedback in Psychiatry: Clinical Applications. Symposium, APA Yearly Meeting, San Diego, CA, 2012

3.QEEG Guided Neurofeedback Training Seminar. BFE Annual Meeting Eindhoven, NL 2009

4.Psychopharmacology and EEG; QEEG Guided Neurofeedback Training, SAN and COST B27 Electric Neuronal Oscillations and Cognition 2nd Yearly Conference Seville, 2008.

5.QEEG Guided Neurofeedback Training. APA Yearly Meeting, San Diego, CA, 2007.

6.QEEG Workshop in the Neurofeedback Social Education Center. Starnberg, Munich 2004.







Hall 1

Friday 16, September Time: 16.30-18.00



WORKSHOP Basic Neuranatomy

Tutorial; Merging the Tangible with the Virtual

Organisers: G. Paraskevas, P.E. Antoniou, A. Athanasiou, I. Asouhidou, D. Anestis, P. David, K. Tagaras, E. Babatsikos, P.D.Bamidis

Anatomy is the first experientially taught topic in human history. Preparing and demonstration of specific anatomical structures from cadavers dates far before the first science experiment. One part of anatomy, though, Neuroanatomy, is rather challenging to teach solely through cadavers. In other anatomical structures their positions are apparent in an appropriately prepared cadaver. Neuroanatomy has several distinct structures, especially in the Central Nervous System (CNS) that are not histologically varied but are distinct enough, evolutionary and functionally, to be differentiated anatomically. This situation leads to challenges when aiming to demonstrate the structure of the brain and specific neural pathways in the CNS.

Virtual and Augmented Reality, the cutting edge of contemporary experiential media can readily alleviate these challenges in Neuroanatomy teaching. Through 3d modelling, different CNS structures can be made visually distinct. Different colours, different textures and animations, can create an interactive virtual CNS anatomical preparation that is far more readily available in digital form. Adding «just in time» information in this experience with concise info-panels along each structure can help the medical student to build a solid neuroanatomical paradigm that will support further studies further down, along their curricular schedule.

This workshop aims to bring to the forefront, for its participants, this duality between the tangible and the virtual in neuroanatomy education. Tangible anatomical preparations, in the form of plastic and real tissue brains, will be utilized by expert anatomy teachers to demonstrate contemporary neuroanatomy teaching. In Tandem, a VR neuroanatomy station will be demonstrating a similar part of neuroanatomical teaching using immersive headsets.

The first 15 minutes of the workshop will comprise a brief introduction of the presenters, as well as the tangible and virtual resources. After this introduction, the participants will participate in an interactive demonstration of neuroanatomy topics in each of the three stations (Plastic, real tissue anatomical preparation, VR headset station). The expected duration of each station's demonstration will be 30 minutes. In the remaining time, the participants will participate in an open-ended Q&A with the facilitators of the workshop regarding their experience.

ACKNOWLEDGEMENT

This work was supported by the ENTICE Erasmus+ Knowledge Alliance (612444-EPP-1-2019-1-CY-EPPKA2-KA)



15-17 SEPTEMBER 2022

Hall 3

Friday 16, September Time: 16.30-18.00



WORKSHOP Interprofessional Training for Tinnitus Researchers and Clinicians -Tin-TRAC Training

E. Vellidou, D. Kikidis, E. Romanopoulou, S. Gilou, S. Triaridis, P. D. Bamidis, E. Paraskevopoulos

Tinnitus is defined as the sensation of noise in the absence of a corresponding external sound. It consists of two parameters, a phantom ringing, hissing or buzzing in the ears or head and the degree of emotional reaction to this percept. Epidemiological studies suggest that it affects 10-30% of adult population in EU countries, while its incidence reaches 5.4 new cases /10000 inhabitants.

Interdisciplinary approach and individualized treatment plan are key points for successful management, due to the great heterogeneity of symptoms. Interprofessional Training for Tinnitus Researchers and Clinicians (Tin-TRAC) will create digital resources that are going to be available to a wide audience of healthcare professionals, clinicians and researchers for the purpose of integrating tinnitus assessment and management in terms of clinical and research practice throughout EU. Tin -TRAC's co- creative health culture and audio-visual resources aim to be understandable from patients and professionals from varied background, via a horizontal thematic approach to exploit recent (neuro)scientific advances on the field and acquire tinnitus specialized skills, through webinars, workshops, scientific exchange and innovative learning objectives.

Teaching staff, researchers, academics, clinical skills experts, learning technologists and IT specialists are invited to participate to the workshop and collaboratively train on co-design and implementation of RLOs, combining theoretical and hands on training.

The Institute of Communication and Computer Systems (ICCS) will implement the activity leading a learning path with the following objectives:

1. demonstrate understanding of the co-design methodologies for Open Education Resources (OER) with emphasis on the ASPIRE framework ("Aims, Storyboarding, Population, implementation, Release, and Evaluation").

2. demonstrate knowledge of the user-centre development approach

3. organize and facilitate participatory workshops with stakeholders in order to enable the co-design and usercentre approaches

4. transfer workshops outcomes into formal specifications for RLOs development.

5. understand what an RLO is and tis pedagogical value

Via this action, the participants will co-creatively prepare the form of the RLOs, that will be integrated in the EUwide e-Learning platform, supporting a multidisciplinary applicable, standardized curriculum on Tinnitus assessment procedures and treatment recommendations, by a variety of videos, webinars, quiz, playful learning activities. The goal is to design a set of interactive, visual, small in size and highly aligned with perceived learning needs RLOs, targeting tinnitus.

ACKNOWLEDGEMENT

This work is supported by the Erasmus+ 2021 Programme, Key Action 2 – KA220-VET - Cooperation partnerships in vocational education and training (2021-1-CY01-KA220-VET-000025455)







15-17 September 2022

SYMPOSIA

WWW.SAN2022.0RG

Venue: Thessaloniki Concert Hall, M2



15-17 SEPTEMBER 2022

Hall 2

Friday 16, September Time: 09.00-11.00

Chairs: Christos Kefalas Maria Pitsikali Konstantinos Kasimis



er Galas Salis S Kasimis Glinical Applications of Neurophysiology in the Management of Neuromusculoskeletal Patients

¹Christos Kefalas, ¹Maria Pitsikali,¹,²Konstantinos Kasimis ¹Association of Manual Physiotherapists of Greece ²Department of Physiotherapy, School of Health Sciences, International Hellenic University

Despite the large number of techniques used in the rehabilitation of neuromusculoskeletal disorders, a lot of questions remain unanswered.

However, the development of the science of neurophysiology in recent years seems to pose a new perspective in the understanding, evaluation, and treatment of neuromusculoskeletal disorders. Recent research evidence regarding the control of the motor system by the brain, provided important information on how the brain integrates sensory-motor information (visualvestibular system, somatosensory stimuli) and renders them as a kinetic result.

In addition, advances in neuroimaging helped in the identification of neural areas related to chronic pain. Structural and functional changes in brain structures accompany chronic pain. It is believed that such changes may be reversible because of neuroplasticity. It is essential to develop therapeutic approaches utilizing neuroplasticity that could be used in the management of chronic pain.

In this symposium, there will be a review of recent research data related to postural and movement control changes of neuromusculoskeletal patients as well as their association to chronic pain. Clinical findings, coming from the objective evaluation of patients, will be analyzed under a different perception, according to data that emerged from adjacent to physiotherapy research fields. New ideas also, will be introduced on the rehabilitation of neuromusculoskeletal patients, leading to new therapeutic concepts.

PROGRAM

Symposium chairs: Savvas Mavromoustakos, Georgios Rogdakis

25' Kefalas Christos PT-OMPT, MSc

Applied Neurophysiology in the Analysis of Neuromusculoskeletal Patients

25' Pitsikali Maria PT-OMPT, MSc

Clinical Applications of Neurophysiology for Neuromusculoskeletal Patients

25' Kasimis Konstantinos PT-OMPT, MSc, PhD candidate

Neuroplasticity and Chronic Pain

15' Chairs Discussion & conclusions

KEYWORDS

human movement control, body schema, postural control, chronic pain, neuroplasticity







Hall 3

Friday 16, September Time: 09.00-11.00

Chairs: Ioanna Dratsiou Oindrila Dutta

Thessaloniki Concert Hall, Martiou 25 & Paralia, Thessaloniki 546 46 Building B



SYMPOSIUM SHAPES Shaping a Pan-European Technological Ecosystem for Active and Healthy Ageing

Organisers: Ioanna Dratsiou, Annita Varella, Evangelia Romanopoulou, Panagiotis Bamidis, Malcolm MacLachlan, Oindrila Dutta, Michael Cooke

The European population is ageing fast. The ageing population will translate into different demands for healthrelated products and services and requiring an overall reorganization of leisure. The promotion of healthy ageing is thus a growing policy priority.

SHAPES aims to create the first European open Ecosystem enabling the large-scale deployment of a broad range of digital solutions for supporting and extending healthy and independent living for older individuals who are facing permanently or temporarily reduced functionality and capabilities. SHAPES Large-scale Piloting campaign engages +2k older individuals in 15 pilot sites in 10 EU Member States, including 6 EIP on AHA Reference Sites, and involves hundreds of key stakeholders to bring forth solutions to improve the health, wellbeing, independence, and autonomy of older individuals, while enhancing the long-term sustainability of health and care systems in Europe. Being an integral part of the Health and Care Cluster Projects, a cluster among the main Horizon2020-financed research projects established by the European Commission, SHAPES working groups leads the Working Group on dissemination.

The aim of this symposium is to present an overview of knowledge in improving health and quality of life of older people, supporting the long-term sustainability and efficiency of health and social care systems, and fostering innovation and digital transformation in the field of active and healthy ageing. Generated knowledge, methodologies, platforms, digital solutions, and services will be presented under the scope of promoting active and healthy ageing of older people. Essential experiences and lessons learned will be also introduced on a panel discussion addressing better understanding in terms of the sustainability of European projects digital platforms and their competitiveness in inspiring European regions to deliver better policies regarding this societal challenge.

AKNOWLEDGEMENT

This work was supported by the SHAPES Project (Smart and Healthy Ageing through People Engaging in Supportive Systems) Horizon 2020 project (No. 857159).

PROGRAM

9.00 – 10.00 Active and Healthy Ageing

SHAPES project: a pan-European ecosystem for Smart and Healthy Ageing

Malcolm MacLachlan, Michael Cooke National University of Ireland, Maynooth (NUIM)

Driving behavior assessment in healthy ageing and patients with cognitive impairment

Sokratis Papageorgiou National and Kapodistrian University of Athens

BRAINCODE for reducing late diagnosis of neurocognitive disorders in older people: pilot-study

Pedro Rocha University of Porto, Portugal

10.00 – 10.50 Sustainability of digital platforms: challenges and lessons learned

- Panel Discussion

Coordination: Ioanna Dratsiou

Dafoulas Georgios (GATEKEEPER project) CitiesNet and Faculty of Medicine, University of Thessaly (UTH), Central Greece

Stamatiadis Vaggelis - (SHAPES project) CIO / Regional Health Authority of Central Greece

Eleutheria Vellidou (SMART-BEAR project) Institute of Communication and Computer Systems (ICCS) of the School of Electrical and Computer Engineering (ECE) of the National Technical University of Athens (NTUA)

10.50 – 11.00 Liaison with other projects

- VITALISE Project: Open Calls for Transnational Access to Research Infrastructures

Evdokimos Konstantinidis European Network of Living Labs (ENoLL) and Lab of Medical Physics and Digital Innovation, Aristotle University of Thessaloniki







Hall 2

Friday 16, September Time: 16.30-18.00



SYMPOSIUM Clinical applications of brain mapping

Organisers/Chairs: Prof. Nikolaos Foroglou, Prof. Vassilis Kimiskidis School of Medicine, Aristotle University of Thessaloniki, Greece

Brain mapping generally involves the study of function correlated with anatomy and incorporates different modalities ranging from imaging, neurophysiology, immunohistochemistry, molecular and ontogenetic studies, stem cell, cellular biology and engineering disciplines. Few of these modalities reach the clinical settings.

The symposium will focus on modalities used in daily clinical practice for neurological disorders. Starting from basic concepts, applications, limitations and different combinations the panel will present updated data for clinicians and researchers interested in neurological diseases.

A final discussion on lateralization techniques will compare different available modalities.

PROGRAM

Alexandra Touroutoglou Functional magnetic resonance imaging

Sylvain Baillet Magnetoencephalography

Vasilios K. Kimiskidis Transcranial magnetic stimulation Nikolaos Foroglou Direct brain stimulation

Charis Styliadis Electroencephalography

Panel discussion



15-17 SEPTEMBER 2022

Hall 2

Saturday 17, September Time: 09.00-11.00

Chairs: Georgios Papazisis Athanasia Liozidou



SYMPOSIUM DRUG CLINICAL TRIALS AND COGNITIVE SAFETY ASSESSMENT

Assessment of safety and tolerability (e.g., cardiovascular effects, changes in liver enzymes, neurological events, etc.) is a crucial component of early-phase clinical studies. Many central nervous system (CNS) and non-CNS compounds have the potential to affect cognitive ability. Any drug that is CNS penetrant (i.e., crosses the blood-brain barrier) can influence cognition through effects on neurotransmitter systems. Cognitive safety is defined as the impact of clinical treatments on the ability to perceive, process, understand, and store information, make decisions and produce appropriate responses.

Currently, the majority of CNS drug clinical trials rely on neuropsychological endpoints for establishing efficacy, safety, and tolerability. Neuropsychological testing is the current standard for measuring the effect of drugs clinical trials on cognitive, motor, behavioral, linguistic and executive functioning. Furthermore, regulatory authorities' expectations warrant the use of specific, targeted, and sensitive cognitive safety assessments. According to the FDA 'all drugs, including drugs intended for non-CNS indications, should be evaluated for adverse effects on the CNS. The occurrence of adverse CNS events in even a small number of phase 1 subjects can indicate the need for more focused studies of CNS effects. Measures of reaction time, divided attention, selective attention, and memory may be appropriate'.

Aim of this symposium is to present an overview of existing assessment tools of cognition that can be integrated into drug trials in order to provide a cognitive footprint. We suggest that such tests should be administered as a standard throughout the key assessment stages of the design of the trial. Provision of such a cognitive footprint profile of drugs may provide the necessary evidence to enable decision-makers to make informed decisions on risk-benefit analysis. Clear understanding of the existing regulatory guidance and effective employment of validated neuropsychological instruments in conjunction with other biomarkers are paving the way for more concrete endpoints in the evaluation of novel therapies that answer critical unmet clinical needs.

KEYWORDS

drug clinical trials cognitive safety neuropsychological assessment





Hall 3

Saturday 17, September Time: 09.00-11.00

Chairs: Alkinoos Athanasiou Alexander Astaras Markos Tsipouras



WORKSHOP ThessRoboGlove Forum – Thessaloniki wearable robotics gloves and apparel knowledge exchange and cooperation Forum

Dr. Alkinoos Athanasiou, Dr. Alexander Astaras, Assoc. Prof. Markos Tsipouras, Prof. Panagiotis D. Bamidis

Precision robotics for accurate reproduction of natural motor output of human upper extremities have been developed for use in assistive medicine and rehabilitation, in industry and in communication and media sections. The rapid expansion of wearable technologies, facilitated by the boom and popularization of rapid prototyping techniques has led to the conception and creation of novel wearable robotic gloves for rehabilitation applications.

While the field features many challenges due to, in part, the particularities and complexity of human hand function, more often than not research teams work in parallel but not in communication, running into similar neurophysiological R&D challenges. This symposium proposal aims to bring together research teams that work in similar wearable robotic glove and hand technologies in the wider Thessaloniki and Northern Greece area in order to facilitate knowledge exchange and promote cooperation.

PROGRAM

- 5 ' Alkinoos Athanasiou introduction to ThessRoboGlove Forum initiative
- 20' Vasiliki Fiska NeuroSuitUp/HEROES project
- 20' Georgia Dimitriou SmartGlove project
- 20' TBA
- 5' Markos Tsipouras Common goals and conclusions, drive to cooperate
- 20 'Discussion (coordination : Alexander Astaras)









Hall 1

Saturday 17, September Time: 16.30-18.00

Chairs: Evangelia Romanopoulou Vicky Zilidou



SYMPOSIUM LLM Care

Practitioners and Stakeholders of cognitive and physical enhancement

Organisers: Evangelia Romanopoulou, Vicky Zilidou, Panagiotis Bamidis

The Integrated Health and Social Care Ecosystem Long Lasting Memories Care – LLM Care (www.llmcare.gr), is an ICT platform that combines cognitive training exercises (BrainHQ) with physical activity (webFitForAll) providing evidence-based interventions to improve both cognitive functions and overall physical condition and, therefore, quality of life.

The LLM Care Ecosystem has managed to assist knowledge transfer, advance European learning, and inform policy development for over a decade, scaling up from the local to regional, and one step further to the European level. The high experience and expertise in national and international collaborations, include more than 40 public and private entities such as nursing homes, municipality day care centres, 350 certified healthcare professionals and more than 4.000 stakeholders exploiting LLM Care in a regular basis.

LLM Care has been recognized as an innovative ecosystem and was thereby awarded a Transnational "Reference Point 2 *" within the European Innovation Partnership for Active and Healthy Aging (EIP on AHA) due to its excellence in developing, adopting, and scaling up innovative practices on active and healthy aging. It is also certified with "ISO 13485: Design and development of medical device software for cognitive and physical enhancement and wellbeing of vulnerable groups".

The aim of this symposium is to present an overview of the extended LLM Care Network in Greece and Cyprus. Significant experiences and lessons learned will be also introduced on a panel discussion by LLM Care key partners addressing better understanding on promoting health and social care and improving older adults' quality of life.

ACKNOWLEDGEMENT

This work is supported by the LLM Care self-funded initiative that emerged as the not-for-profit business exploitation of the Long-Lasting Memories (LLM Project) originally funded by the ICT-CIP-PSP (Information and Communication Technologies–Competitiveness and Innovation Framework Programme–Policy Support Programme) Program of the European Commission.



15-17 SEPTEMBER 2022

Hall 2

Saturday 17, September Time: 16.30-18.00

Chairs: Stefanie Enriquez-Geppert **Diede Smit**



SYMPOSIUM Updates on the Frontal Midline Theta (Fm θ) Neurofeedback (NF) Protocols for Improving Executive Functions

Speakers:

1. Prof. Dr. Shulan Hsieh: Fm theta neurofeedback in elderly 2. Dr. Kathrin Eschmann: Fm theta neurofeedback in healthy controls 3. Dr. Stefanie Enriquez-Geppert: Fm theta neurofeedback in pilots 4. Diede Smit: Fm theta neurofeedback in a subclinical group

In the first talk, Shulan Hsieh (National Cheng Kung University Tainan, Taiwan) will present the efficacy of a 12-session Fm θ training for improving attention and working memory performance in healthy older people. Her research thus replicates the findings of Wang and Hsieh (2013) and provides more solid evidence for the effectiveness of this protocol. In the second presentation, Kathrin Eschmann (Cardiff University Brain Research, UK) will talk about a 7-session $Fm\theta$ training with healthy students. This study investigated whether the protocol improves proactive rather than reactive processes of cognitive control, as previous research had suggested. In contrast to the sham group, Fm0 increased during NF in the experimental group, with transferred to performance on the proactive task rather than the reactive task evident after almost two weeks and correlated with Fmθ increase during NF.

In the third talk, Stefanie Enriquez-Geppert (University of Groningen, the Netherlands) presents the collaboration with Prof. Frédéric Dehais (ISAE-SUPAERO, Toulous) on a study investigating a 8-session Fmθ training to improve executive functions (EF) and flight performance in pilots. A hybrid test of EF and the multi-attribute task battery were studied before and after NF. Furthermore, flight performance under increased cognitive demand (operationalized by an additional task) was assessed (only) after training in a flight simulator. Preliminary result indicate improved cognitive performance in sub-areas of both test batteries in the experimental group, which also shows improved navigation performance of flight performance in the simulator and higher accuracy in the additional task compared to the sham group.

Finally, Diede Smit (University of Groningen, The Netherlands) will discuss a study with 8-session Fm θ training in a subclinical group with subjective EF complaints in daily life with or without a mental illness. The results showed higher Fm θ changes during the course of NF in the experimental compared to the sham group, which translated to the performance on some of the EF tasks. The results extend the findings of Enriquez-Geppert et al. (2014), of improvements in EF not only in healthy young individuals, but also in a subclinical group with a wide age range. The symposium will conclude by assessing the transfer phase of the Fm θ NF protocol from the laboratory to application by discussing a mega-analysis, combining data from different studies.

OBJECTIVE

This symposium provides an overview of the current status of $Fm\theta$ upregulation NF as peak performance training and as possible clinical intervention.









Hall 3

Saturday 17, September Time: 16.30-18.00

Chairs: Alkinoos Athanasiou Aristeidis Vrahatis Phivos Mylonas



SYMPOSIUM Bioinformatics and Neuroinformatics

Organisers: Dr. Alkinoos Athanasiou, Dr. Aristeidis Vrahatis, Assoc. Prof. Phivos Mylonas MSc Bioinformatics and Neuroinformatics, School of Science & Technology, Hellenic Open University, Patras Greece

This proposed symposium firstly aims at highlighting and discussing important and emerging research topics in the areas of Bioinformatics and Neuroinformatics, including topics in computational biology, neural engineering, genomics and proteomics and neurophysiology.

Second, this symposium aims at providing a forum for students and teaching staff of the MSc of Bioinformatics and Neuroinformatics of the Hellenic Open University to present their research work from their respective educational objects. Such a forum not only promotes the conduct of science in the framework of a new and novel MSc course but also improves the quality of post-graduate studies in a field relevant to Applied Neurosciences. It also aims to bring MSc students from various backgrounds closer to the concept of Applied Neurosciences through their participation in the SAN conference.

KEYWORDS

bioinformatics computational biology neural engineering neuroimaging neuroinformatics neurophysiology genomics proteomics

PROGRAM

Symposium chairs: Alkinoos Athanasiou, Aristeidis Vrahatis, Phivos Mylonas

5'	Phivos Mylonas	Introduction to Bioinformatics & Neuroinformatics
		Symposium
20'	Christina Lamproudi	A clinical phenotype-driven serious game
		neurofeedback application for adhd
20'	Maria Myrsini Gounari	Graph-based approaches in the road for network
		biomarkers for complex diseases
20'	Apollon Zoiros	A framework for efficient pre-processing of single-cell
		RNA-seq data
20'	Petros Paplomatas	An ensemble dimensionality reduction and feature
		selection method for single-cell RNA-seq data
20'	Gabriella Mpourmpoulia	ARPNet and models of heterogenous response in
		treatment of depressive disorder
15'	Chairs	Discussion & conclusions



