



The 15th International Conference on Brain Informatics (BI 2022)

15 - 17 July 2022, Padova - Italy

Brain Science meets Artificial Intelligence



Hybrid event, co-hosted at:
Padova, Italy (in-person) and Queensland, Australia (online)

15th International Conference on Brain Informatics (BI 2022)

Programme

July 15-17, 2022

In-person and Online Conference

<https://wi-consortium.org/conferences/bi2022/>

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Welcome Message from the Organizers

Dear Friends and Colleagues,

Welcome to the 2022 International Conference on Brain Informatics (BI'22). It is our great pleasure and privilege to welcome you to Padova, Italy! The conference program reflects the intellectual richness that the area can offer in the interdisciplinary and multidisciplinary fields of brain informatics. On behalf of the BI'22 Conference Committees, we would like to appreciate your participation and do hope that you will enjoy the conference technical and social programs.

Brain Informatics is an emerging interdisciplinary and multidisciplinary research field that combines the efforts of Cognitive Science, Neuroscience, Medical Science, Data Science, Machine Learning, Artificial Intelligence (AI), and Information and Communication Technology (ICT) to explore the main problems that lie in the interplay between human brain studies and informatics research. The 15th International Conference on Brain Informatics (BI 2022) provides a premier international forum to bring together researchers and practitioners from diverse fields for presentation of original research results, as well as exchange and dissemination of innovative and practical development experiences on Brain Informatics. The main theme of BI 2022 is *Brain Science meets Artificial Intelligence* with respect to the five tracks: Cognitive and Computational Foundations of Brain Science; Human Information Processing Systems; Brain Big Data Analytics, Curation and Management; Informatics Paradigms for Brain and Mental Health Research; and Brain-Machine Intelligence and Brain Inspired Computing.

The WICI International Workshop on Web Intelligence Meets Brain Informatics, held in Beijing, China in 2006, and kicked off the Brain Informatics conference series. It was one of the first conferences to focus on the application of informatics to brain sciences. The 2nd, 3rd, 4th and 5th BI conferences were held in Beijing China (2009), Toronto Canada (2010), Lanzhou China (2011), and Macau China (2012), respectively. Since 2013, health was added to the conference title as Brain Informatics and Health (BIH) with an emphasis on real-world applications of brain research in human health and well-being. The BIH13, BIH14 and BIH15, BIH16 were held at Maebashi Japan, Warsaw Poland, London UK, Omaha, USA, respectively. In 2017, the conference went back to its original design and vision to investigate the brain from informatics perspective and to promote brain-inspired information technology revolution. Thus, the conference name was changed back to Brain Informatics at Beijing, China in 2017. The editions in 2018 and 2019 were held in Arlington, Texas, USA and Haikou, China, respectively.

The COVID-19 pandemic appears to have had the most significant impact on conferences in 2020, with the conference originally scheduled for Padua, Italy being hosted virtually, and the typical three-day conference was shortened to one day. In 2021, the conference was still held online due to the impact of the epidemic. To increase participation, we decided to go back to the usual three days with one day

dedicated to workshops and special sessions, one day to the excellent keynote sessions, and one day to the technical sessions.

Drawing from our years of offline and two years of online experience designing and facilitating conference, a three-day conference had held in the form of hybrid in 2022. The hybrid format of this conference is unique in that it is co-hosted at Padova, Italy (in person) and Queensland, Australia (online). The most exciting thing is that the University of Padua celebrates its 800 years anniversary from the foundation in 1222. The organizers took the opportunity to celebrate the University of Padua's birthday by hosting the 15th International Conference on Brain Informatics for the year 2022 in Padua.

The BI 2022 hybrid conference was supported by Web Intelligence Consortium (WIC), University of Padua, Padua Neuroscience Centre, University of Oxford, University of Queensland, the Chinese Association for Artificial Intelligence, Peking Union Medical College, IEEE Computational Intelligence Society, International Neural Network Society, and Springer Nature.

The BI 2022 solicited high-quality papers and keynote talks with world-class speakers, panel discussions, workshops, and special sessions. The BI 2022 involves several world leaders in brain research and information technologies, including Silvestro Micera, Robert Legenstein, Gustavo Deco, Themis Prodromakis, and Christian Georg Mayr who give talks on state-of-the-art research advances on BI from methodologies, frameworks, techniques to case studies and applications.

On behalf of the BI'22 Conference Committees, we would like to thank all authors, presenters, keynote speakers, panelists, workshop/special session organizers, and all members of the International Program Committee for their substantive contributions towards the high quality of the BI'22 conference. We would like to thank the sponsors for their valuable support. Organizing such a major event would not be possible without a solid organization, and without the efforts of many people. We are extraordinarily appreciative for the tremendous and most effective administrative and secretarial support from the local host and local organizing team. We thank you for your participation and support of BI'22! We encourage you to explore many excellent technical programs and network events during the BI'22 conference. Hope you enjoy the conference and will have fond memories in Padua!

July 15, 2022

Conference General Chairs

Mufti Mahmud, Nottingham Trent University, UK
Stefano Vassanelli, University of Padova, Italy
Andre van Zundert, University of Queensland, Australia

Program Committee Chairs

Alessandra Bertoldo, University of Padova, Italy
Gopikrishna Deshpande, Auburn University, USA
Jing He, University of Queensland, Australia

Programme Snapshot

All time are in **GMT+2 (Italy time)**

Day 1: July 15, 2022 (Workshop & Special Sessions Day)		
08:30 - 10:30	Special Session	SS2
	Workshops	WS5, WS6, WS7
10:30 - 11:00	Networking Break	---
11:00 - 13:00	Panel	Panel I (Brain Computer Interface (BCI)-Security and Privacy Challenges and Solutions)
13:00 - 14:00	Lunch Break	---
14:00 - 16:00	Special Session	SS1
	Workshops	WS1 (13:30), WS2 + WS9, WS4, WS8
Day 2: July 16, 2022 (Main Conference Day)		
08:30 - 09:00	On-site Registration	
09:00 - 09:30	Opening of the Conference	
09:30 - 10:15	Keynote	Keynote 1 - Professor Gustavo Deco
10:15 - 11:00		Keynote 2 - Professor Themis Prodromakis
11:00 - 11:30	Coffee Break	---
11:30 - 12:15	Keynote	Keynote 3 - Professor Robert Legenstein
12:15 - 13:00		Keynote 4 - Professor Silvestro Micera
13:00 - 14:30	Lunch	--
14:30 - 16:00	Panel	Panel II (Application of Artificial Intelligence Towards Inclusiveness and Personalisation for Students with Learning Disabilities and Autism)
16:00 - 16:30	Coffee Break	--
16:30 - 18:00	Panel	Panel III (Open, Explainable, and Ethical Approaches to Brain Research: Opportunities and Challenges)
20:00 - 23:00	Banquet	--
Day 3: July 17, 2022 (Technical Sessions Day)		
09:00 - 10:30	Parallel Technical Session 1	Track 1: Cognitive and Computational Foundations of Brain Science (Paper IDs: B222, B229, B243, B265, B225)
		Track 2: Investigations of Human Information Processing Systems (Paper IDs: B203, B204, B227, B231, B233, B208)
		Track 3: Brain Big Data Analytics, Curation and Management (Paper IDs: B221, B226, B230, B245, B250, B255)
10:30 - 12:00	Parallel Technical Session 2	Track 4: Informatics Paradigms for Brain and Mental Health Research (Paper IDs: B228, B235, B237, B241, B246, B254)
		Track 5: Brain-Machine Intelligence and Brain-Inspired Computing (Paper IDs: B207, B215, B224, B240, B247)
		Abstracts: Peer-reviewed Abstracts (Abstract IDs: B223, B213, B212, B211, B210, B209)
12:00 - 12:30	Coffee Break	--
12:30 - 13:15	Keynote	Keynote 5 - Professor Christian Georg Mayr
13:15 - 13:45	Closing Ceremony + Awards + BI 2023 Announcement	

Links for Opening, Keynotes, and Closing Sessions

Day 2 (16 July 2022):

Zoom Meeting Link and ID:

- Meeting Link: <https://us02web.zoom.us/j/82493378669>
- Meeting ID: 824 9337 8669

Broadcasting Links:

- YouTube Link: <https://youtu.be/eaUZ9aJdYy0>
- Tencent Link: <https://meeting.tencent.com/l/8yq0F722zsoA>

Day 3 (17 July 2022):

Zoom Meeting Link and ID:

- Meeting Link: <https://us02web.zoom.us/j/82872470361>
- Meeting ID: 828 7247 0361

Broadcasting Links:

- YouTube Link: https://youtu.be/OVaiA_Tc_eQ
- Tencent Link: <https://meeting.tencent.com/l/Su4NfU3esTzq>

Time Difference Table

	Country	Time Zone	Summer Time (+1)	Time Difference with Italy
USA	Pacific (Los Angeles)	GMT-8	GMT-7	-9
	Mountain	GMT-7	GMT-6	-8
	Central	GMT-6	GMT-5	-7
	Eastern (Boston-Hanford)	GMT-5	GMT-4	-6
	Italy	GMT+1	GMT+2	0
	China	GMT+8	GMT+8	+6
	Japan	GMT+8	GMT+9	+7
	Australia	GMT+10	GMT+11	+9