



# 2022 INTERNATIONAL BRAIN BEE WORLD CHAMPIONSHIP



[THEBRAINBEE.ORG](https://www.thebrainbee.org)

THE NEUROSCIENCE COMPETITION FOR TEENS

JULY 2 - 9, 2022

# The International Brain Bee

## neuroscience competition

Welcome from the 2022 IBB World Championship Planning Committee

Dear Brain Bee National Champions,

On behalf of the 2022 IBB Planning Committee and the IBB Board of Directors, it is our honor to welcome you to the 2022 IBB World Championship! The IBB is the premiere international academic neuroscience competition. Each and every one of you has achieved something exceptional, and so it is our privilege to address you as a National Brain Bee Champion. Congratulations!

The members of the 2022 IBB Planning Committee and the IBB Organizing Team have spent countless hours putting together both a program that (we hope) is worthy of the work, dedication, and passion that brought you here today. We thank the many academic volunteers that have contributed to the study and competition materials, and this year's judging panel that will oversee the final live judging round. But the World Championship is so much more than a competition – you will be part of a community! You will meet students from across the world for an important cultural experience and we hope you will encourage and support one another throughout the World Championship and beyond. Our social program has been designed to introduce you to each other, to provide an educational experience, and to set the stage for long-term friendships and new connections. We will have three keynote presentations from world renowned neuroscientists. A panel of accomplished neuroscience professionals will share their personal stories and career paths and will answer your questions about starting your own journey into neuroscience. An interactive neuroscience activity put together by the Allen Institute designed specifically for the IBB will introduce you to the cutting edge of

neuroscience research. We provided you with advanced background reading to prepare you to participate in a dialectic led by a world leader in neuroethics as you work in teams to debate a neuroethics question. The competition itself will be challenging and rewarding experience for you and an opportunity to demonstrate your knowledge and passion for neuroscience. It promises to be exciting.

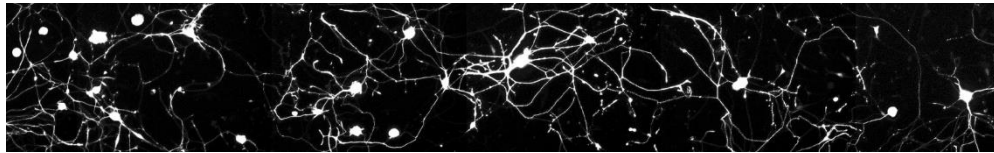
Hosting a virtual World Championship is challenging, particularly given the different time zones. The most ideal schedule will still make it inconvenient for some of you and for that we apologise. We hope you will participate fully and enthusiastically. Despite the time zones and distances that separate us, we all come together as a group to celebrate you – the next generation of neuroscientists. This includes the many Brain Bee coordinators and volunteers around the world that have contributed to getting you this far, the guest speakers and academic volunteers, and the entire organizing team. We look forward to a successful, fun, and memorable event.

Best wishes and best of luck!

Garth A. Fowler, PhD  
Co-Chair, 2022 IBB World Championship Planning Committee

Jacobo D. Sitt, MD, PhD  
Co-Chair, 2022 IBB World Championship Planning Committee





## Competition Schedule July 2 to 4, 2022

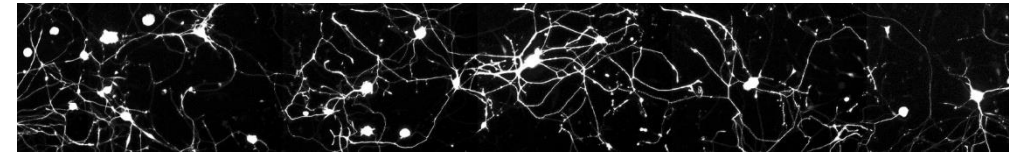
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Online testing period for written exam, neuroanatomy, neurohistology, and patient diagnosis.

## Program Schedule July 4, 2022

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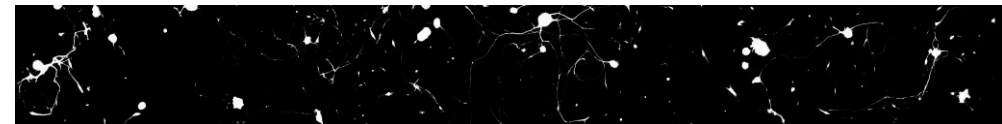
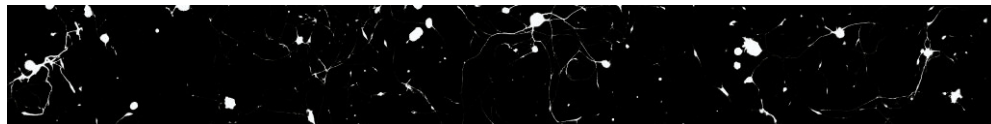
<i>TIME ZONE CEST</i>	<i>EVENT &amp; DETAILS</i>
13:00 to 15:00	Opening Ceremony Live Streaming Link: <a href="https://go.thebrainbee.org/opening-ceremony-stream">https://go.thebrainbee.org/opening-ceremony-stream</a>

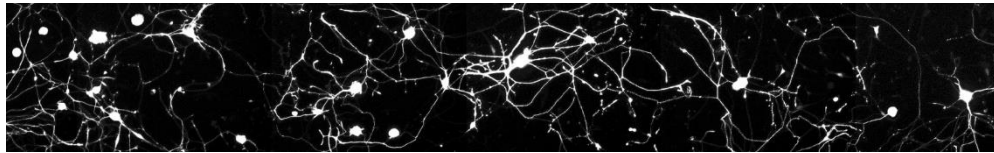


## Program Schedule July 5, 2022

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<i>TIME ZONE CEST</i>	<i>EVENT &amp; DETAILS</i>
11:00 to 12:00	Opening Social
12:00 to 13:30	Cultural Exchange Video Presentation <a href="https://go.thebrainbee.org/cultural-exchange-stream">https://go.thebrainbee.org/cultural-exchange-stream</a>
13:30 to 14:00	Social Break
14:00 to 15:00	Keynote Lecture I: Bernard Zalc, MD, PhD <i>La Salapêtrière: Birth Place of Neurology as a New Medical Discipline</i> <a href="https://go.thebrainbee.org/keynote-1-stream">https://go.thebrainbee.org/keynote-1-stream</a>

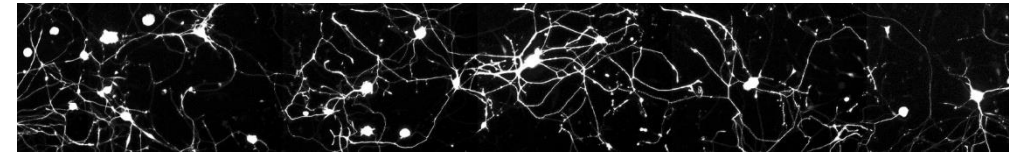




## Program Schedule July 6, 2022

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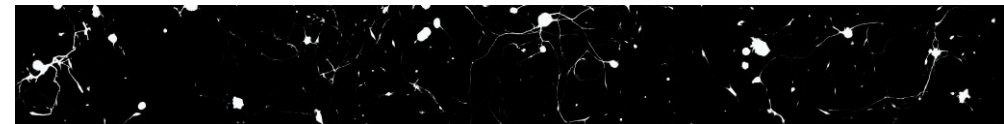
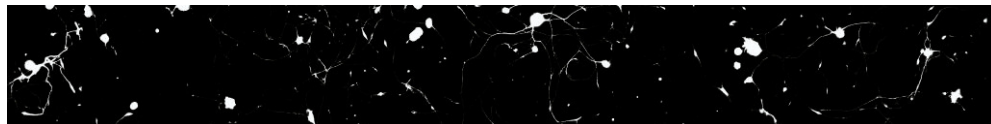
<i>TIME ZONE CEST</i>	<i>EVENT &amp; DETAILS</i>
11:00 to 13:30	Neuroethics: Dialectic James Giordano, PhD, MPhil
13:30 to 14:00	Social Break
14:00 to 15:00	Keynote Lecture II: Julia Sliwa, PhD <i>From agents, to action, to interactions, to societies: primates' brain networks for social processing</i> <a href="https://go.thebrainbee.org/keynote-2-stream">https://go.thebrainbee.org/keynote-2-stream</a>

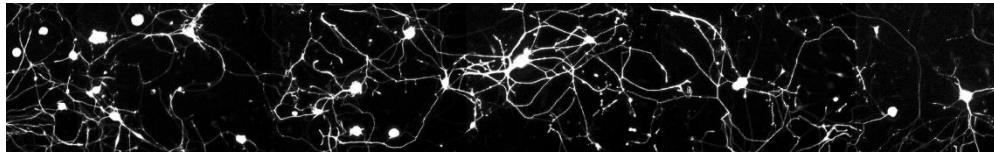


## Program Schedule July 7, 2022

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<i>TIME ZONE CEST</i>	<i>EVENT &amp; DETAILS</i>
13:30 to 15:30	Career Panel <a href="https://go.thebrainbee.org/career-stream">https://go.thebrainbee.org/career-stream</a>
16:00 to 17:00	Interactive Neuroscience Demonstration The Allen Institute

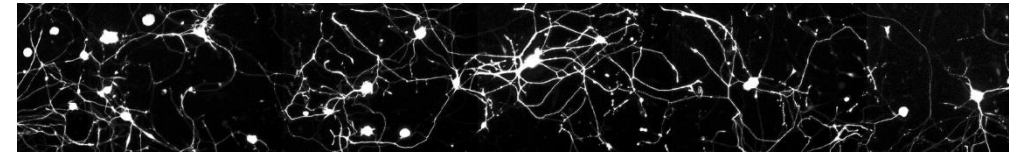




## Program Schedule July 8, 2022

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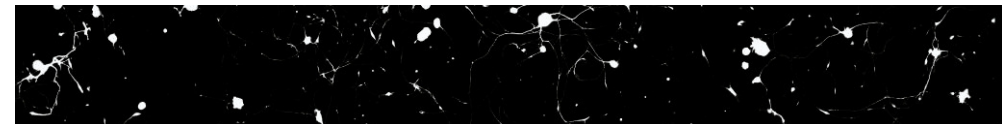
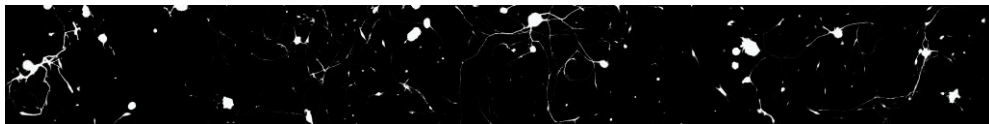
<i>TIME ZONE CEST</i>	<i>EVENT &amp; DETAILS</i>
12:00 to 14:00	Competition: Live Judging Session <a href="https://go.thebrainbee.org/live-judging-stream">https://go.thebrainbee.org/live-judging-stream</a>
14:00 to 14:30	Social Break
14:30 to 15:30	Keynote Lecture III: Joseph LeDoux <i>The Flipside - Music and the Brain, Literally</i> <a href="https://go.thebrainbee.org/keynote-3-stream">https://go.thebrainbee.org/keynote-3-stream</a>

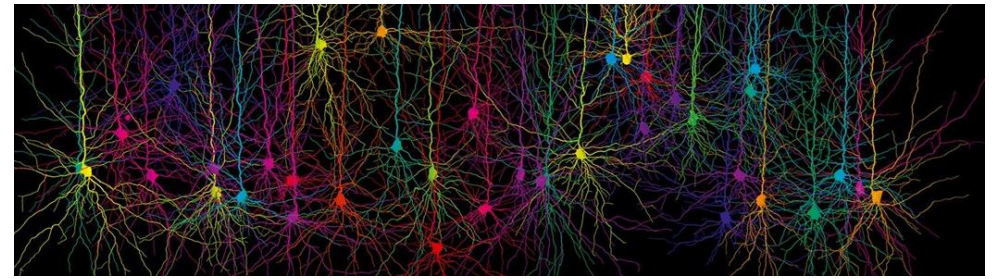
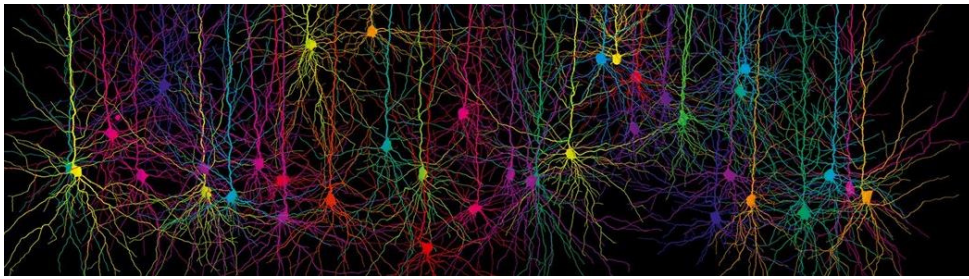


## Program Schedule July 9, 2022

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<i>TIME ZONE CEST</i>	<i>EVENT &amp; DETAILS</i>
16:45 to 17:00	Award Ceremony Part I (FENS Forum) <a href="https://go.thebrainbee.org/awards-ceremony-1-stream">https://go.thebrainbee.org/awards-ceremony-1-stream</a>
17:00 to 18:00	Award Ceremony Part II <a href="https://go.thebrainbee.org/awards-ceremony-2-stream">https://go.thebrainbee.org/awards-ceremony-2-stream</a>
18:00 to 19:00	Afterparty





### **The 2022 IBB Planning Committee**

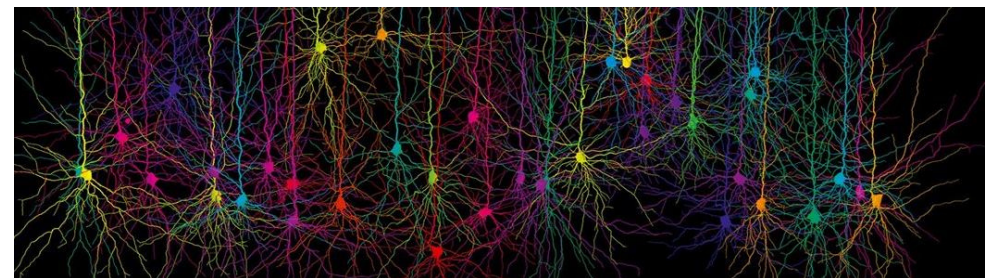
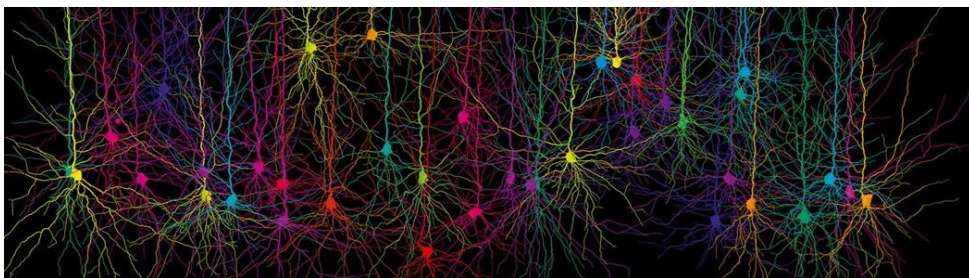
Garth A. Fowler PhD, Co-Chair  
Jacobo D. Sitt, MD, PhD, Co-Chair  
Tasia Asakawa, FENS  
Barbara Best, Dana Foundation  
Kaitlyn Casimo, PhD, Allen Institute  
Percy Griffin, PhD, Alzheimer's Association

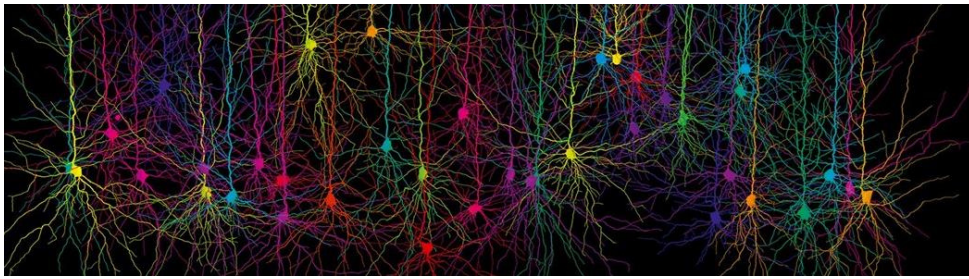
### **The 2022 IBB Organizing Team**

Marlene Assfalg, IBB Coordinator  
Andrea Batoon, Leadership Initiatives  
Ionut Dumitru, PhD, IBB Academic Director  
Astrid Eberhart, IBB Executive Director  
Florian Kohrt, IBB IT Consultant  
Tatjana Schmidt, IBB Social Media Coordinator  
Brian Silvera, Paris Brain Institute  
Emily Xiao, IBB Intern

### **Thank You!**

The 2022 IBB Planning Committee and Organizing Team would like to thank all who have contributed to the organization of the 2022 IBB World Championship. We also thank our local and national coordinators around the world for their commitment to the Brain Bee initiative and for supporting their Champions. We want to highlight Andrii Cherninskyi, our Brain Bee coordinator in Ukraine, for his unwavering commitment and continuing the Brain Bee competition during the most challenging circumstances. We also thank him and Viktoriia Vydzhak, our 2021 IBB World Champion and now IBB Intern, for their help with this year's IBB competition materials. Thank you to all members of the Academic and Competition Advisory Committee and Workgroups listed on the next page.





## The 2022 IBB Academic Working Groups

### *Written Test Workgroup*

Moataz Assem, PhD, Egypt (Coordinator)  
Andrii Cherninskyi, PhD, Ukraine  
Mariana Martini, PhD, France  
Michael Matisse, PhD, USA  
Soraya Mehrabi, PhD, Iran  
Viktoriia Vydzhak, Ukraine (IBB Intern)

### *Neuroanatomy and Neurohistology Workgroup*

Charles Watson, MD, PhD, Australia (Coordinator)  
Jafri Abdullah, MD, PhD, Malaysia  
Aliny Carvalho, Brazil  
Cristian Gurzu, PhD, Romania  
Juan Montiel, PhD, Chile  
Friedrich Schwarz, Germany  
Alfred Sholl Franco PhD, Brazil  
Andre Toulouse PhD, Ireland  
Antoni Klonowski, Canada (IBB Intern)

### *Patient Diagnosis Workgroup*

Tiziana Cesetti, PhD, Germany (Coordinator)  
Natalie Contourier, Germany  
Sarah Hörner, Germany  
Michael Lee, MBBS (MD), Hong-Kong  
Teresa Spanò, Germany

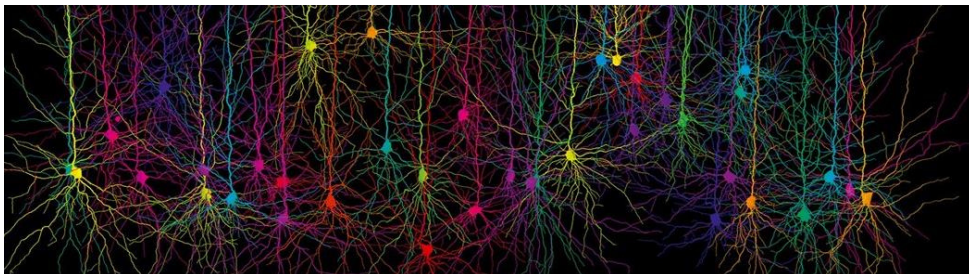
### *Competition Support*

Marta Orlando, PhD, Germany

A special thank-you to Prof. Charles Watson, Dr. Matthew Kirkcaldie (University of Tasmania) and Friedrich Schwartz for generating this year's supplemental study materials!

## IBB Academic and Competition Advisory Committee

Garth A. Fowler, PhD, USA (Chair)  
Moataz Assem, PhD, UK  
Kaitlyn Casimo, PhD, USA  
Michael Matisse, PhD, USA  
Ramesh Rajan, PhD, Australia  
Claire Sexton, PhD, USA  
Charles Watson, MD, PhD, Australia



## Message from the 2021 Champion

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### Viktoriia Vydzhak

Dear 2022 International Brain Bee Participants,

Congratulations on being the National Champions of your countries. This profound success has undoubtedly been the result of your hard work, passion and talent. I am sure that IBB 2022 will provide a wonderful opportunity for you to grow further on the way to your dreams.

IBB 2022 World Championship will probably be one of the most outstanding events during your school years and definitely one that will give you life-long benefits. I believe that this experience will reinforce your passion towards neuroscience and help you make a deliberate choice of what you want to do in the future. You will meet fantastic and inspiring people, both experts in the field of neuroscience and peers from all around the world, and I hope you will find friends who share your interests and aims. As a person whose life has been greatly changed by participation in the Brain Bee competition and then being an IBB intern, I am confident that you will enjoy the passionate and supportive global Brain Bee community.

I hope you enjoy yourself during this amazing and unforgettable event. You must be proud of yourself as you have already achieved a lot. IBB will definitely allow you to grow even more.

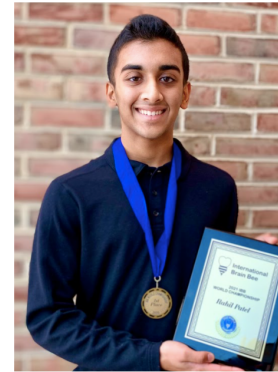
Wishing you all the best,

Viktoriia Vydzhak  
2021 IBB World Champion (Ukraine)



## Message from the 2020 Champion

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### Rahil Patel

Congratulations on winning your country's National Brain Bee! Your hard work and dedication has paid off with this extraordinary accomplishment. No matter what happens in the IBB, you should all be very proud of how far you have come. It is an honor to represent your country in this competition.

The International Brain Bee is a very exciting event to partake in and one you will never forget.

The experience and memories are things you will remember for the rest of your life. However, the greatest aspect of the competition may be the people involved in the competition. From the experts in the field to the other competitors passionate about neuroscience, it is not often you will be surrounded by so many people dedicated to this field. Make sure to reach out and form connections with them as the friendships can last for a lifetime.

Ultimately, make sure to enjoy yourself in the competition as it is meant to be fun. Give it your best effort and trust in the hard work you have already put in. I hope you enjoy yourself, meet new people, and learn even more about neuroscience.

Rahil Patel  
2020 IBB World Champion (United States)







## Judges

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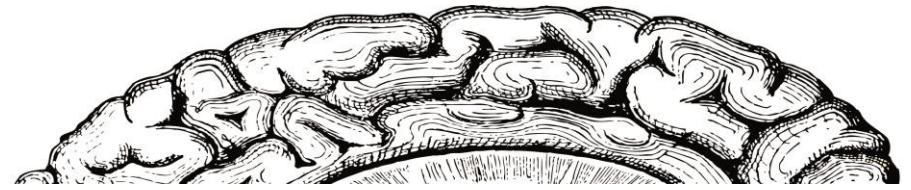


### **Anna Beyeler, PhD**

University of Bordeaux, France

Anna Beyeler received her undergraduate degree in Biochemistry from the University of Bordeaux in 2006. Her expertise in electrophysiology roots in her doctoral training in the same university. In 2012 she joined the Picower Institute for Learning and Memory (MIT) as post- doctoral fellow. There, she identified circuit and synaptic mechanisms in the amygdala underlying memory formation and retrieval of positive and negative associations. In 2020, Dr. Beyeler has been

tenured as a principal investigator at the French Institute of Health (INSERM). Her research group is located in the Neurocentre Magendie within the vibrant Neuroscientific community of Bordeaux, where they are working on dissecting the contribution of circuits of the insular cortex in emotional valence and anxiety.



## Judges

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### **Eero Castrén, MD, PhD**

University of Helsinki, Finland

Eero Castrén, MD, PhD, is currently Research Director at the Neuroscience Center, University of Helsinki, Finland. He has been trained at the National Institute of Mental Health, Bethesda, MD, Max Planck Institute for Psychiatry, Munich, Germany and Department of Neuroscience and Psychiatry, Columbia University, NY.

Castrén is internationally known for his studies on the role of neurotrophins and neuronal plasticity in the antidepressant drug action. He has recently shown that both typical and fast-acting antidepressants act by directly binding to brain-derived neurotrophic factor (BDNF) receptor TrkB and allosterically increasing BDNF signaling. His lab has also shown the critical role of TrkB receptors in parvalbumin-interneurons in the antidepressant response. He has found that through increased TrkB signaling, antidepressants reactivate a juvenile-like plasticity in the adult rodent brain, including the visual cortex and in the fear extinction network, revealing the critical role of neuronal plasticity in the antidepressant drug action. These findings established that antidepressants act by increasing sensitivity of neuronal networks to environmental influences, which provides a new paradigm where active engagement of the patient together with drug-promoted plasticity is required. This work reveals that BDNF signaling is activated by drugs that are clinically available, which suggests that antidepressants could be used to promote neurotrophin signaling and plasticity in any brain disorder where plasticity is beneficial.





## Judges

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### **Laurent Cohen, MD**

Paris Brain Institute, France

Laurent COHEN is a neurologist at the Pitié-Salpêtrière Hospital, professor at the Sorbonne-University Faculty of Medicine and researcher at the Institut du Cerveau (ICM, Paris). He combines teaching, clinical practice and research in the field of cognitive neuroscience. His scientific activity is devoted to the study of higher cognitive functions, particularly language, reading and mental

calculation. His research is mainly based on the study of patients with brain damage, perceptual disabilities, and healthy subjects, combining methods from experimental psychology and neuropsychology with anatomical and functional brain imaging techniques. He has brought cognitive neuroscience to a wide audience through several books and media columns.



## Judges

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### **Charles Watson, MD, PhD**

Distinguished Professor of Health Sciences  
Curtin University, Perth, Australia

Charles Watson holds doctorates in medicine and science and has a specialist qualification in public health medicine. He has published over 100 research articles and 30 books. One of his books, a rat brain atlas published with George Paxinos, has been cited over 100,000 times. Charles's recent interest in gene expression in the developing brain is a product of his fortunate

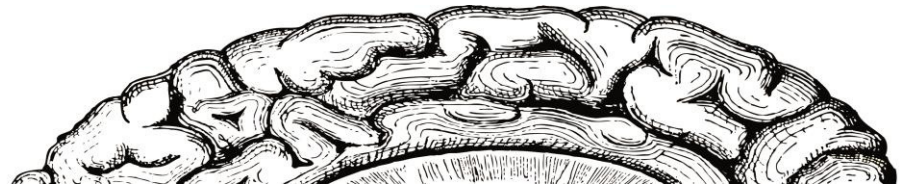
collaboration with the brilliant Spanish researcher, Luis Puelles.

Charles has a reputation for being an enthusiastic teacher of neuroanatomy at undergraduate and postgraduate levels. He has been involved in the Brain Bee competition in Australia for over 10 years and has recently joined the IBB exam team. He is currently contributing to the development a new IBB internet platform, which will offer neuroscience learning materials to Brain Bee competitors all over the world.

Alongside his interest in neuroscience, Charles is deeply involved in climate change advocacy and gun control. He is married to Anwen Williams and lives in Perth, Western Australia. He has two daughters, four grandchildren, and two border collie dogs.



# Keynote Lecture I



## **Bernard Zalc, MD, PhD**

Sorbonne University, France

Dr. Bernard Zalc has obtained his MD from Pitié-Salpêtrière Medical School in Paris and his PhD (Doctorate Es Sciences Naturelles) from University Pierre et Marie Curie (Paris)(now Sorbonne University). After graduating, Dr. Zalc has been a post-doc at University of Michigan (Ann Arbor-USA) and then at the Institute Pasteur in Paris. Dr. Zalc received a position of

Directeur de Recherche at Inserm (Institut National de la Santé et de la Recherche Médicale). After creating the Inserm Unit “Biologie des Interactions Neurons/Glie”, Dr. Zalc was directing the Research Center of the Brain and Spinal Cord Institute (ICM). This research center group together 26 teams, with a total of nearly 600 people involved in neuroscience research, teaching and clinical research (<https://icm-institute.org/fr/>). Since January 2011, all these teams have been regrouped in a new building of 22 000m<sup>2</sup>, which has been erected in the heart of the campus of the Pitié-Salpêtrière hospital. After stepping down from the direction of ICM, he joined the team directed by Dr Lubetzki and B. Stankoff.

Dr. Zalc's scientific interest is in the biology of myelin forming cells and related diseases with a particular focus in Multiple Sclerosis. He has concentrated his effort on the understanding of the origin during development of the oligodendrocyte, the myelin-forming cell in the central nervous system. Major findings from Dr. Zalc have been to establish the map of the restricted site of emergence of oligodendrocytes along the neural tube and to demonstrate that oligodendrocytes are generated by different sources of progenitors. Dr. Zalc's ongoing research is aimed at deciphering the molecular mechanisms underlying the process of myelin formation, with a particular focus on remyelination. His present work is devoted to the development of transgenic Xenopus models for live imaging of demyelination and remyelination. Another project in collaboration with Catherine Lubetzki and Bruno Stankoff is to develop human imaging, in Multiple Sclerosis patients, to visualize myelinated tracts, demyelinated areas and evaluating remyelination using positron emission tomography. In collaboration with the journalist Florence Rosier he has written a book: “Myelin the brain's supercharger” published by Oxford University Press (2018).

## **La Salpêtrière: Birth Place of Neurology as a New Medical Discipline**

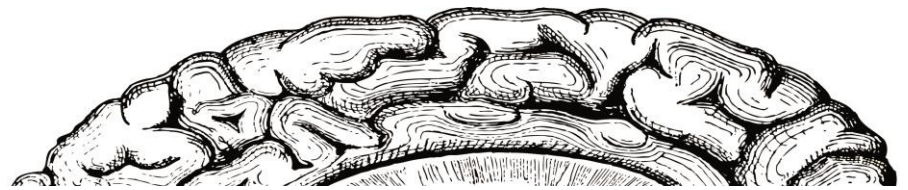
The Salpêtrière was originally a gunpowder factory ( saltpetre being a constituent of gunpowder), but in 1656 under the will king Louis XIV, it was converted into a hospice for the poor women of Paris. Between 1663 and 1673, 240 of the women at the Salpêtrière hospice were sent on a mission to populate the Americas and help build New France. They were in the total number of 768 young women recruited during the ten-year period to become known as the "King's Daughters".

On the eve of the Revolution, Pitié-Salpêtrière Hospice had become the world's largest hospice, with a capacity of 10,000 "patients" and over 300 prisoners. Until the French Revolution, the Salpêtrière had no medical function.

At the very end of the 18th century, the early humanitarian reforms in the treatment of the mentally ill were initiated here by Philippe Pinel (1745–1826), Later, when Jean-Martin Charcot (1825–1893) together with Alfred Vulpian took over the department, the Salpêtrière became celebrated as a neuropsychiatric teaching centre. It is the merit of Charcot, thanks to his rigorous methodology, inherited from Laennec and Claude Bernard, tying up clinical observation, anatomo-pathology and physiology, to have created Neurology as a new medical discipline.

The Hôpital de la Pitié, founded about 1612, was moved next to the Salpêtrière in 1911 and fused with it in 1964 to form the Groupe Hospitalier Pitié-Salpêtrière. The Pitié-Salpêtrière is now a general teaching hospital with departments focusing on most major medical specialities. However, Neurology, psychiatry and neurosurgery have been maintained as a major field of specialty, leading to the creation in 2009 of the ICM: the Paris Brain Institute.





## Keynote Lecture II

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### **Julia Sliwa, PhD**

Paris Brain Institute, France

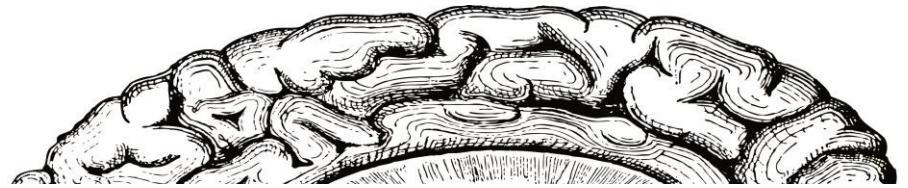
Julia Sliwa is an Associate Scientist at the French National Centre for Scientific Research fascinated about how our social skills are rooted in ancient biological and phylogenetic mechanisms. She is carrying her research program at the Paris Brain Institute since 2019. Her group is investigating the neural and neuronal mechanisms that enable brains of social beings to make sense of their societies, using a combination

of neuroimaging, neurophysiology, physiological recordings and behavioral testing. Previously, she trained as a Kavli Post-Doctoral Fellow and a Human Frontier Science Program Post-Doctoral Fellow at The Rockefeller University in New York City, USA, in the Laboratory of Pr. Winrich Freiwald, where she studied how social interactions are processed by the brain. She received her PhD degree from the University of Lyon in France following training at Institut des Sciences Cognitives Marc Jeannerod under the guidance of Dr. Sylvia Wirth and of Dr. Jean-Rene Duhamel. Her doctoral work was on face-voice integration for identity perception and its neural underpinnings in the hippocampus and temporal cortex. Dr. Sliwa is a recipient of the Peter and Patricia Gruber International Research Award in Neuroscience, of the Young Researchers Bettencourt Prize and of the Association de Femmes Françaises Diplômées d'Université/Dorothy Leet Award. Her research has been featured in Scientific American Magazine and several news outlets.

### **From agents, to actions, to interactions, to societies: primates' brain networks for social processing**

Our brain continuously decodes the complex visual scenes unwinding in front of us: both the nature of material entities, such as individuals and objects, and their immaterial interactions. I will briefly talk about recognition of individuals and next turn to social scenes and interaction processing. Interactions are fundamental in that they reveal hidden properties of intentional agents, such as their thoughts and feelings and of objects, such as their mass or material. Where and how interaction analyses are implemented in the brain was not much studied. Using whole- brain functional magnetic resonance imaging in humans and in macaque monkeys, we discovered a network that is engaged in social interaction analysis. Two additional networks exhibited either social or both social and physical interaction preference. Extent and location of the social interaction analysis network in monkeys suggest that this function could be an evolutionary forerunner of human mind-reading capabilities.





## Keynote Lecture III

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### **Joseph LeDoux, PhD**

New York University, USA

Joseph LeDoux is a University Professor and Henry and Lucy Moses Professor of Science at New York University, and directs the Emotional Brain Institute at NYU. His work is focused on the brain mechanisms of emotion, memory, and consciousness. LeDoux has received a number of awards for his research, and is an elected member of the American Academy of Arts and Sciences

and the National Academy of Sciences USA. He is also the author of several books, including *The Emotional Brain*, *Synaptic Self*, *Anxious* (2016 APA William James Book Award), and *The Deep History of Ourselves* (finalist for the 2020 Pen America E.O. Wilson Award for Literary Science Writing). He is the 2023 President-Elect of the Association for the Scientific Study of Consciousness. As a sideline, he is the lead singer and songwriter in the rock band, *The Amygdaloids*, and in the acoustic duo *So We Are*

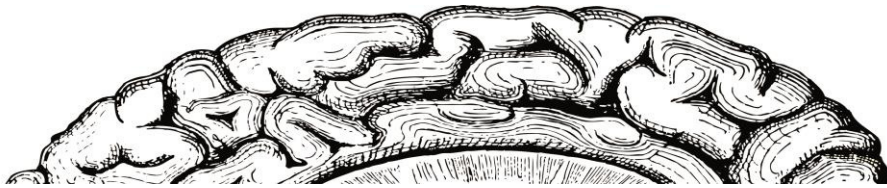
### **The Flipside - Music and the Brain, Literally**

Many scientists play music. I'm one. I'm the rhythm guitar player, song writer, and singer in *The Amygdaloids*. We play original music about mind and brain and mental disorders. The songs are inspired by research that I do, as well as general ideas in the brain and cognitive sciences, and the philosophy of mind. For me, playing music is not a distraction to other life obligations. It makes me better at everything else I do.



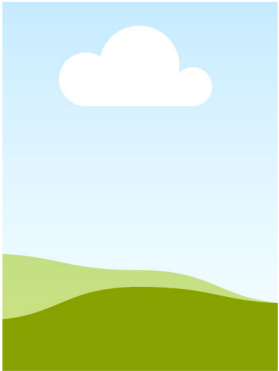
Dr. LeDoux's rock band *The Amygdaloids*





## Academic Volunteers

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**Tasia Asakawa**

Executive Director, FENS

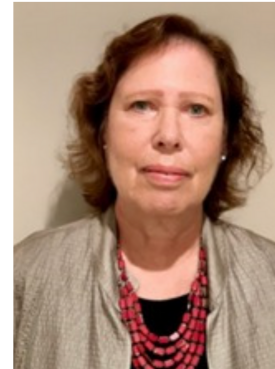
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## Academic Volunteers

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**Barbara Best**

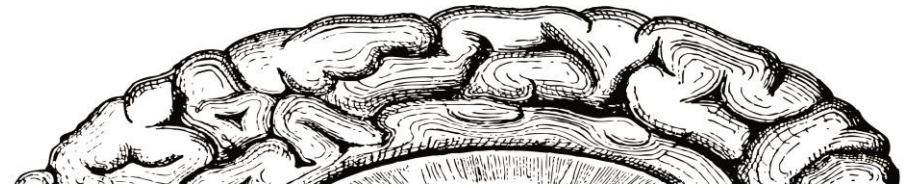
Executive Director  
Dana Alliance for Brain Initiatives  
Dana Foundation

Barbara Best is Executive Director of the Dana Alliance for Brain Initiatives (DABI), a global organization of neuroscientists and clinicians with a proven history of and commitment to advancing public awareness about the progress and promise of brain research. The Dana Alliance is supported entirely by the Dana Foundation, a private philanthropic organization dedicated to advancing understanding about the brain in health and disease through research grants and public outreach.

Following a key role in the official launches of DABI and its sister organization, the European Dana Alliance for the Brain (EDAB), she has overseen the Alliances growth and global expansion to more than 650 members worldwide.

Barbara manages all facets of DABI and EDAB and finds innovative ways to engage and involve members in both Dana Alliance and Foundation efforts. She was involved with the formation of the Brain Awareness Week campaign, managed the New York City Regional Brain Bee Competition for several years, and supervised many of the Dana Alliance's public outreach and educational programs. Ongoing efforts include forming strategic partnerships with like-minded organizations, supporting the goals of the Foundation.





## Academic Volunteers

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### **Kaitlyn Casimo, PhD**

Training & Outreach Specialist  
Allen Institute

Kaitlyn Casimo develops training programs and materials for scientists to learn how to use the open data resources and tools produced by the Allen Institute for Brain Science ([brain-map.org](http://brain-map.org)) and Allen Institute for Cell Science ([allencell.org](http://allencell.org)). She also created the education outreach program, reaching high school and college educators with free lesson plans,

webinars, and more resources using the Institute's open data and tools, available at [alleninstitute.org/learn](http://alleninstitute.org/learn). She received her BA from Pomona College and PhD from the University of Washington, both in neuroscience. She also volunteers at Pacific Science Center, where she has presented an annual Halloween-themed science talk since 2015.

## Academic Volunteers

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### **Yasmine Cantaut-Belarif**

CNRS Research Associate  
Paris Brain Institute

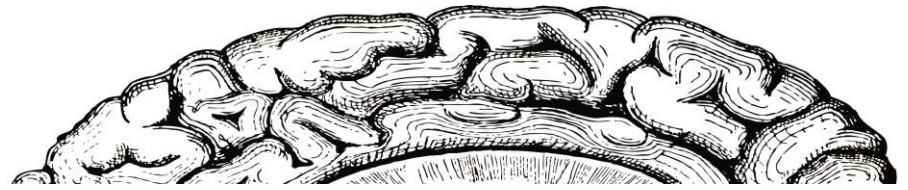
Bio : Dr. Yasmine Cantaut-Belarif is a permanent researcher at CNRS and principal investigator at the Paris Brain Institute. During her PhD (2010-2015) at the Institute of Biology of Ecole Normale Supérieure, she studied the role of neuro-glial interactions in the stabilization of inhibitory synapses in spinal cord neurons and the

regulation of their efficacy. She then moved to the Paris Brain Institute for her postdoctoral research (2016-2020), where she demonstrated the role of the Reissner fiber, an acellular polymer bathing in the brain cavities, in the control of the geometry of the body during development. Her research now tackles the molecular mechanisms by which this fiber controls the straightness of the body along life.



## Academic Volunteers

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### **Garth Fowler, PhD**

Chair, 2022 IBB World Championship Planning Committee

Garth A. Fowler is a nationally recognized and active leader in STEM education and workforce development. In his 15-year career he has given over 100 keynotes, presentations, and workshops on STEM education and training, science policy, and development of the STEM workforce. He has been an educational policy and research consultant for institutions including New York

University, The Scripps Research Institute, and the Karolinska Institute. He has served as a panelist for committees of the US National Academy of Sciences, co-organized summits for the Burroughs Wellcome Fund, and was chair of the AAAS Science and Technology Policy Fellowships program's Selection Committee, and he currently serves as a reviewer of manuscripts in the field of STEM workforce and career development for PLoS ONE.

Dr. Fowler studied psychology as an undergraduate at The College of Wooster, where was a Howard Hughes Medical Institute Undergraduate Research Award recipient. He received his PhD in behavioral neuroscience from the University of Washington, where he was supported by a National Institutes of Health training grant in vision research. He completed his scientific training as a Research Fellow at The Salk Institute for Biological Studies. He was a program manager at AAAS and Science magazine, was a faculty member and assistant chair in the department of Neurobiology at Northwestern University, and was an Associate Executive Director for Education at the American Psychological Association. He is a current member of the International Brain Bee Board of Directors and is the chair of the IBB's Academic and Competition Advisory Committee (ACAC).

## Academic Volunteers

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### **James Giordano, PhD, MPhil**

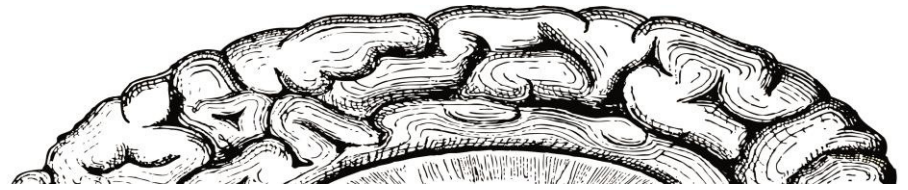
Georgetown University, USA

James Giordano, PhD, MPhil, is Professor in the Departments of Neurology and Biochemistry; Chief of the Neuroethics Studies Program; and Chair of the Subprogram in Military Medical Ethics at Georgetown University Medical Center, Washington DC. Professor Giordano is a Bioethicist of the Defense Medical Ethics Center, Uniformed Services University of the Health Sciences; Gast Professor of Biomedical

Technology, Health Promotions, and Ethics at the Coburg University of Applied Sciences, Coburg, GER; Distinguished Fellow in Science, Technology, and Ethics at the Stockdale Center of the United States Naval Academy; Senior Fellow in Biosecurity, Technology, and Ethics at the US Naval War College, Newport, RI; Senior Science Advisory Fellow of the SMA Branch, Joint Staff, Pentagon; and serves as Director of the Institute for Biodefense Research, a federally funded Washington DC think tank. Prof. Giordano is the author of over 325 peer-reviewed publications, 7 books and 40 international governmental reports on brain science and biosecurity, and is an elected member of the European Academy of Science and Arts, a Fellow of the Royal Society of Medicine (UK), and a Fulbright Professorial Fellow. A former US Naval officer, he served with the US Navy and Marine Corps.







## Academic Volunteers

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### **Percy Griffin, PhD**

Director, Scientific Engagement  
Alzheimer's Association

Percy Griffin, Ph.D. M.Sc., is director, Scientific Engagement for the Alzheimer's Association®, where he leads efforts to accelerate the organization's scientific efforts. He engages with more than 75 Association chapters across the country, informing staff and the public of scientific initiatives and the organization's crucial role in advancing research to improve the lives of

all those facing Alzheimer's and other dementias.

Prior to joining the Association, Dr. Griffin held several roles that honed his expertise in research and scientific communication. Most recently, he worked as a pharma analyst, consultant, editor, and illustrator.

As a researcher, Dr. Griffin has led independent translational projects in Parkinson's and Alzheimer's disease focused on protein degradation, neuroimmunology, and circadian rhythms. He is a co-author of several papers, including "Circadian clock protein Rev-erba regulates neuroinflammation," published in the journal Proceedings of the National Academy of Sciences of the United States of America (PNAS).

Dr. Griffin holds a doctorate in molecular cell biology from Washington University in St. Louis, a master's degree in pharmacology from the University of Minnesota Medical School and a bachelor's degree in biology and chemistry from Macalester College. During his graduate studies Dr. Griffin participated in optional science communication training and got grant funding from external agencies.

## Academic Volunteers

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### **Julianna McCall, PhD**

Co-Director of Precision Medicine, California  
Governor's Office of Planning & Research

As Co-Director of the California Initiative to Advance Precision Medicine, Dr. McCall oversees cross-sector health policy projects, research grantmaking, and state government interagency efforts, which include serving on the Governor's COVID-19 Testing Task Force and co-authoring the first-ever CA Surgeon General's Report on Adverse Childhood Experiences.

Previously, Dr. McCall worked on public health and research policy in the California Senate Office of Research and as a Science and Technology Policy Fellow of the California Council on Science and Technology. Prior to her career in policy, she spent sixteen years in neuroscience research labs, including at the Salk Institute, Stanford University, the Cleveland Clinic, and the National Center for Microscopy Imaging Research. She conducted medical research as a Fulbright Fellow in Sweden and as a neuroscientist at the Neuroregeneration Laboratory of Heidelberg University in Germany.





## Academic Volunteers

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### **Jacobo Sitt, MD, PhD**

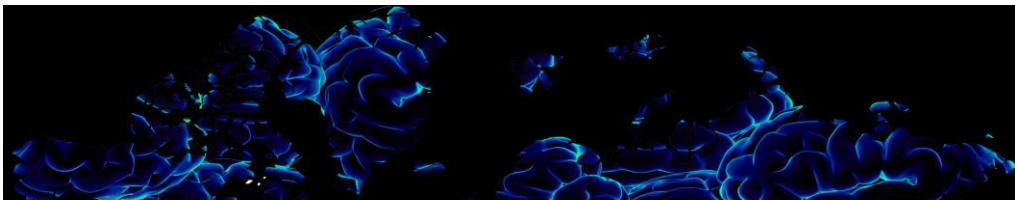
Co-Chair, 2022 IBB World Championship  
Planning Committee

Dr. Jacobo Sitt is a Director of Research at the French National Institute of Health and Medical Research (INSERM). He is currently a team leader and part of the research and medical steering committee at the Paris Brain Institute in Paris, France. In addition to his career in research, Dr. Sitt has a long-term commitment to STEM education. As a high-school student, he was twice

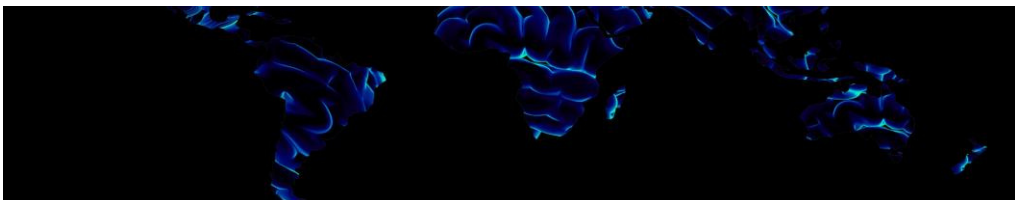
the national champion at the Physics Olympiads and the Argentinean representative in the International Physics Olympiads. He was the head of advanced science education programs from 2000 to 2009 in ORT Argentina. The national organizer and international team leader of the Argentinean Junior Science Olympiads from 2006 to 2010. Since 2019 is the organizer of the French chapter of the Brain Bee.

Dr. Sitt was trained as a psychiatrist at the University of Buenos Aires and received his Ph.D. in mathematical modeling and non-linear dynamics also from the University of Buenos Aires. His research in the neuroscience of consciousness specifically aims at testing the causal role of neural markers of consciousness using different experimental models, neuroimaging methods, and stimulation techniques. He specializes in neuro- imaging signal analysis, mathematical modeling, nonlinear dynamics, information theory, and machine learning.





## 2022 Student Participants



*Congratulations to all 2022  
National Champions!*

ARGENTINA  
Lila Schiaffino

CROATIA  
Ana Karla Vodanović

AUSTRALIA  
Jiaxi (Calvin) Zhu

EGYPT  
Salma Badr

BRAZIL  
Ian Campos

FRANCE  
Alexandre Ravel

CANADA  
Helene Li

GERMANY  
Anya Zhu

CHILE  
Sofia Fothergill

GHANA  
Yasmin Muftawu Jawula

CHINA  
Yingying Gong

GRENADA  
Rémi Fraisse



HONG KONG  
Chun Hei (Brian) Chau

HUNGARY  
Richard Lawson

IRAN  
Seyed Ali Mousavi

IRELAND  
Olivia Rocha da Rocha Brito

ISRAEL  
Darya Doctori

ITALY  
Isabella Bertolami Adrianza

JAPAN  
Hayato Nakagawa

LATVIA  
Huberts Zimackis

LITHUANIA  
Ugne Birstonaite

MACAU  
Kam Soi Io

NEPAL  
Neesta Bhandari

NETHERLANDS  
June Heemskerk

NIGERIA  
Chosen Amechi

POLAND  
Dominika Sawicka

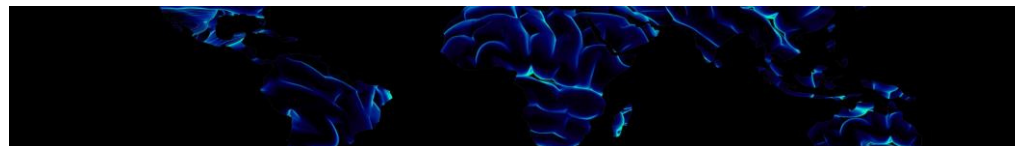
ROMANIA  
Elisa Velicu

SOUTH KOREA  
Yurim Jin

UKRAINE  
Yelyzaveta Tsepovatenko

UNITED KINGDOM  
Maja Olma

UNITED STATES OF AMERICA  
Anmol Bhatia





ARGENTINA  
Lila Schiaffino

Lila Schiaffino is a first year medicine student at University of La Plata. She participated in the Neuroscience Olympics the last two previous years and thanks to that, discovered her passion for the human body and the diseases around it. In her free time she likes listening to music, boxing and playing guitar.

Lila became intrigued by biology a few years ago, thanks to her biology professor and decided to pursue the medicine career.

Her plans for the future are finishing the career in order to become a neurosurgeon.



AUSTRALIA  
Jiaxi (Calvin) Zhu

Jiaxi (Calvin) Zhu is a Year 11 student at Yarra Valley Grammar in Melbourne, Australia. He is a passionate science and mathematics student, which has driven him to grapple with understanding all aspects of the human brain. Calvin has enjoyed applying his skills and knowledge of biology, chemistry and physics to the multi-disciplinary challenges presented in the area of neuroscience. He has also enthusiastically sought to encourage younger students to accept the challenge of studying what is one of, if not the most, complex components of the universe. Calvin is hoping to pursue a career in neuroscience, with interests in both the research and surgical fields. In his spare time, when he is not studying for examinations and the Brain Bee, he is relaxing by following basketball and listening to piano music. Calvin is thankful for the opportunity to be representing his school and country on the international stage.



BRAZIL  
Ian Campos

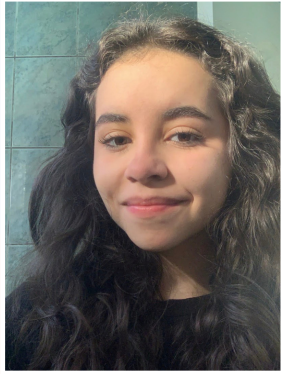
Ian is a 17-year-old high school student attending Colégio Etapa. Since he was a kid he wanted to be a neurologist, always being interested with the neurosciences and all the possibilities that are proportioned by it. Ian intends to attend a med school, specializing in neurology, more precisely in in degenerative diseases, since he believes that is a field able to help people all around the world.

Besides neurosciences, Ian is interested in sports and tecnology. He is a basketball player and a gym enthusiast, and loves to play videogames in his free time. Also, Ian believes that the International Brain Bee is a oportunity to enter the neurosciences world, and a great oportunit to meet people that have the same interests as him.



CANADA  
Helene Li

Helene Li is a Grade nine student in the International Baccalaureate program at Merivale High School in Ottawa, Ontario. At school, her favourite subjects are mathematics and biology. In her free time, she plays volleyball and practices the piano. Her interest in neuroscience is rooted deeply in her curiosity about the brain— its complex structure and her desire to discover novel therapies to meet urgent needs and improve the quality of life of many. Preparing for the Brain Bee has helped her grow as a student; she has created a foundation for her future studies in neuroscience and actively sought more efficient studying methods that will certainly guide her for years to come. While studying, she also developed a keen interest in the visual and motor fields of neuroscience. Her dream is to become a neuroscientist. She is in awe of their responsibilities and remarkable contributions to society. Neuroscience research is a greatly expanding field with plentiful research opportunities. According to Open Neuroscience Initiative, more neuroscience studies were published from 2015 to 2020 than in the last seventy years alone! Helene dreams that one day she can contribute to the efforts made by neuroscientists around the world. She is honoured to represent Canada in this once-in-a-lifetime experience at the International Brain Bee 2022. She is also excited to test her neuroscience knowledge alongside her peers who share the same passion and make friends for future years.



CHILE  
Sofia Fothergill

Sofia Fothergill is an 11th year student at The International School La Serena, Chile. She had always found the brain to be one of the most fascinating organs, therefore she was thrilled to be exposed to a competition about it. Planning to pursue a career in the medical field, she hopes to be of inspiration for future generations in her country. She believes this happens to be the ideal opportunity to meet people who are as fond of the human body as she is. Her interests are mostly STEM related, though, she absolutely adores dancing. Her main goal in life is to be able to make a difference and help those in need, and she strongly believes this competition will help her fulfill those dreams.



CHINA  
Yingying Gong

Yingying Gong recently graduated from Nanjing Foreign Language School. She followed standard Chinese curriculum for 12 years and will receive higher education in the US. Curious about the consciousness and mentality, she delved into neuroscience, philosophy and computer science. She is extremely fascinated about how different subjects collaborate to uncover the mystery of how consciousness evolves. Yingying was always impressed by science as the embodiment of human rationality, but she suddenly wondered the validity of scientific reasoning, the induction in particular, when she walked out of a chemistry laboratory 2 years ago. Then she began to study history and philosophy of science to examine the foundation and evolution of science. Also, she read books and wrote paper in bioethics and medical ethics to understand the responsibilities of scientists and reflect on latent problems born by new technology. Moreover, Yingying likes to spread knowledge and help others. She co-founded Emergency Club and led Chemistry and Life Club in high school, holding seminars on crystal-field theory and training classes on CPR. She loved a verse from a poem by Shi Su, "Life is like Epherma in the world, a drop in the sea." Individual life is limited, but the exploration by human always continues. Yingying feels honored to represent China at the International Brain Bee, a very beginning yet a milestone of her exploration of the brain.



CROATIA  
Ana Karla Vodanović

Ana Karla Vodanović is an 8th-grade student at Matija Gubec Primary school in Zagreb. She has been interested in medicine and neuroscience since 5th grade, participating in the National Brain Bee for the last two years. Beyond neuroscience, she is passionate about maths, chemistry, debate, and reading all kinds of books, especially fantasy and science fiction ones. In her free time, she trains and competes in fencing. She hopes to have a career in neurosurgery one day.



EGYPT  
Salma Badr

Salma Badr is 11th grade student. Salma started searching for her passion by participating in many competitions and self learning, from learning the space to discovering her own horizon inside her; the nervous system! By joining Brain Bee, neuroscience has amazed her, especially reading about brain function and consciousness. Salma seeks to continue her life in researching about NS and hard problem of consnesnious. Besides academic career, Salma is interested in drawing, reading and learning new skills. Her nearest goals -aside from science career- she is willing to master learning German and some computer skills.



FRANCE  
Alexandre Ravel

Alexandre Ravel is a graduating senior at Ecole Jeannine Manuel in Paris, France. Currently, his favorite subjects are biochemistry, linguistics, and developmental biology. Alex hopes to conduct research on cures for Type 1 Diabetes and DIPG as a medical doctor one day. He became curious about neuroscience while preparing for his first Brain Bee in 2019. In particular, he was fascinated by the huge potential neuroscience could have beyond the medical field as in philosophy and sociology. He founded a club at his school to explore these areas with his classmates. In addition to his scientific interests, Alex loves diving into a broad range of subjects in his free time ranging from learning languages such as Polish and Finnish and composing electronic music to reading about Manchu history. He is also an avid traveler and loves hiking through alpine forests and snowfields. Alex is honored and excited to represent France at the 2022 International Brain Bee.



GERMANY  
Anya Zhu

Anya Zhu is a 16-year-old student attending year 12 at the Internat Solling in Holzminden, Germany. She loves everything complex and challenging and has found a perfect match in the field of neuroscience - with so much being unexplored and undiscovered yet.

Only recently, after changing to boarding school one year ago, has she begun participating in science competitions which have brought her a lot of enrichment opportunities and, above all, the important chance to meet others sharing her interest and engagement in science (the former, eventually, skyrocketed), encouraging her to dream of a career in scientific research. Apart from this, she also enjoys classical literature, music and kickboxing. She is rather surprised to have ended up making it to the international level of the Brain Bee and regards this as another invaluable possibility to broaden her horizon.



GHANA  
Yasmin Muftawu  
Jawula

Yasmin Muftawu Jawula is a 17-year-old Muslim girl who comes from the Savannah region of Ghana. She is a student at Galaxy International School, Accra, and is currently in her final year, studying General Science, which is no surprise at all since she has shown great interest in science from her childhood. It is still in fact, her favorite area of study as at now. She is the co-leader of the Students Representative Council at her school and loves this job very much. She lives in Accra and has had all her education there. She is the third of four children to her parents who are both Ghanaians as well.

Yasmin is participating in the International Brain Bee Competition for the first time after winning the national competition in 2021. She loves to read and watch movies in her free time. She also enjoys visiting the beach and places of greenery. She loves to write poems as a way of expressing herself. Generally, she is an outgoing person who loves having productive conversations with anyone she comes across. She aspires to be a medical doctor in the future.



GRENADA  
Rémi Fraise

Rémi Fraise is a 17 year old male who attends Presentation Brothers' College. He has a passion for Science and Geography. He is a hardworking determined intellectual youth representing the small island of Grenada in the Caribbean. His goal is to attain international glory in the International Brain Bee Competition.



HONG KONG  
Chun Hei (Brian)  
Chau

Brian is a 16-year-old student at La Salle College in Hong Kong. From his local train network to the arrangement of galaxies, complex systems have captivated Brian since his formative years. This, combined with his quest to understand the human condition, has led him to venture into the world of neuroscience. In particular, he is fascinated by the use of medicine and technology to cure neurological diseases.

Outside Brain Bee, Brian often partakes in other science competitions. He is the reigning champion of the International Biology Olympiad – Hong Kong Contest and has won numerous medals in informatics and linguistics. In his spare time, Brian enjoys listening to Cantopop and J-pop; he also loves discussing philology and calligraphy with his friends. One particular hobby of his is numismatics: in the past five years, by coin-swapping with people across the world, he has amassed a collection of over 1,400 coins from 174 countries. While Brian is yet to decide on his career path, it is his fervent desire to advance the frontiers of knowledge and, eventually, use it for the benefit of mankind.



HUNGARY  
Richard Lawson

Lawson Richard Hanh is a 17-year-old student studying at Fazekas Mihály Primary and Secondary Grammar School of Budapest. Richard has long been fascinated by topics from cell biology, molecular biology, biochemistry and neuroscience. In the past year Richard has had the chance to work in a neurobiology laboratory, where among other things he learned how to isolate hippocampi of mice. Outside of the laboratory and school he also likes to experiment at home by himself. For example he has once tried extracting DNA from bananas and building a gel electrophoresis machine to separate the fragments by size.



IRAN  
Seyed Ali Mousavi

Seyed Ali Mousavi is a 11th student at Shahid Soltani 4 high school. At the age of 14, his passion for neuroscience peaked when he realized that a person's feelings, beliefs, behaviors, attitudes... are entirely originated from his nervous system. In his spare time, he loves reading books, mostly related to science, philosophy and history. His other interests include neorealist cinema (like Fellini's films), jazz (especially a Gershwin or Ellington tune) and guitar (Bob Dylan and Eric Clapton).



IRELAND  
Olivia Rocha da  
Rocha Brito

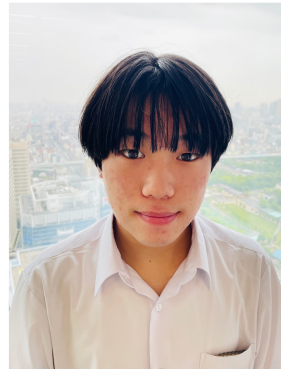
Olivia is a 13-year-old student in 1st year at Mercy College Sligo, Ireland. Her favorite subjects are science and maths, and over the last few years, she has developed an interest in neuroscience and how the brain works, with a particular interest in brain disorders. Olivia enjoys reading, drawing, baking, and playing the piano in her free time. She also likes to play basketball, swim, and play tennis.

Olivia believes that the International Brain Bee competition is an opportunity to learn more about the nervous system and could be the first step to a career as a researcher in the neuroscience field. She is very grateful for this opportunity and aspires to one day make a notable contribution to neuroscience.



ISRAEL  
Darya Doctori

Darya is an 18-year-old undergraduate (studying Biology) at the Hebrew University of Jerusalem. She was first exposed to the world of neuroscience at the age of 14, through a 3-years Neuroscience program for youth, at the Weizman Institute of Science. Darya was fascinated about the topic and found deep interest in neurodegenerative diseases and psychiatric disorders! Besides science, she accomplishes great joy by playing the piano, clarinet, guitar and ukulele! She loves learning new languages, and enjoys writing poems and short stories which she (sometimes) reads to her family and friends. Darya aims to continue building her academic career, majoring in brain science. This way, with a lot of hard work and huge passion she could make her dreams come true and contribute to the scientific community.



JAPAN  
Hayato Nakagawa

Hayato Nakagawa is a 12th-grade student at Tennoji Senior High School attached to Osaka Kyoiku University in Japan. His grandfather's illness triggered his exploration of neuroscience. In his first year of high school, he enrolled in a science exploration program at Osaka University to help him learn about his grandfather's disease. In his second year of high school, he was assigned to a university laboratory where he analyzed "the effects of visual information processing disorder on brain function and other senses." The research taught him that "blindness" is not a "deficiency," but rather a new door opening in the brain. He was very impressed that "absence" could trigger the expression of new or dormant genes. In the future, he hopes to elucidate the mechanisms of developing intractable neurological diseases and develop treatments for them.

He enjoys listening to music and playing the piano in his spare time. He has won the Minister of Education Award in a national robotics competition. He is also interested in BMI (Brain Machine Interface) research.

Last year, he developed an "international perspective" by taking six months of lectures online at Stanford University's Cross-Cultural Program. He looks forward to meeting companions from around the world at the International Brain Bee 2022.



ITALY  
Isabella Bertolami  
Adrianza

Isabella Cristina Bertolami Adrianza is a 18-year-old student attending the fourth year of high school at the scientific-linguistic high school Pietro Metastasio. She is a Venezuelan girl that migrated to Italy almost three years ago, where she had the opportunity to get into the study of neuroscience. Now, she wants to become a researcher to expand our knowledge about the human brain, since only by its understanding we can improve our coexistence. Isabella enjoy reading, listening to music and spending time with the people she loves. Winning the national round of the Brain Bee in Italy inspired her to continue to pursue her dreams and allowed her to meet incredible people. So she hopes that this too will be an experience that will make her grow as a person and will extend her notions.



LATVIA  
Huberts Zimackis

Huberts is an eighteen year old, recently from Rezekne State gymnasium No.1. graduated high school student, who is really keen on different sciences, history and languages, but particularly he adores biology and all of its transcendently broad spectrum of the research field – how different kinds of life forms functions internally – their anatomy, physiology, cytology – and externally – sub-species relationships and ecological structures. For him some of the most interesting sub-spheres in biology are neurology, neuroanatomy and psychiatry, because they bring broad information about one of the most important organisms' self-control systems which is crucial for understanding the mechanisms of other biological systems. He also loves animals - especially cats, snakes and chickens- and he likes reading books, listening to music, as well playing the piano and organ. Huberts thinks that the participation in this olympiad will be a great experience and will bring him a lot of new opportunities!





LITHUANIA  
Ugne Birstonaite

Ugne Birstonaite is a 17-year-old high school student attending Vilnius Vytautas Magnus Gymnasium. She first became fascinated by neuroscience after attending a lecture about the lucid dreams phenomenon. Ugne is particularly interested in behavioral neuroscience and molecular biology and, after high school graduation, plans to study biochemistry and later specialize in neuroscience. Degenerative disorders are one of her interests, and she hopes to contribute to their better understanding. Outside of academics, she enjoys listening to music and playing the violin and piano. She is a passionate traveller and dreams of visiting Iceland someday. Ugne is honoured to represent Lithuania at the International Brain Bee and believes this experience will contribute to reaching her goals in science.



MACAU  
Kam Soi Io

Kam Soi Io is a 17 years old boy studying in Instituto Salesiano, a catholic school in Macau. Kam has a very sharp knack for Biology and Chemistry. He always brings focused energy to class and makes outstanding progress in his academic and personal pursuits. He loves to do self-research and readings outside classroom. In addition to Biology and Chemistry, Kam also enjoys playing the piano and clarinet and listening to various types of music. In the future, he plans to study pharmacy in order to learn the effects of drugs. Brain Bee introduced Kam to the world of neuroscience, he is honored to participate in IBB as a representative of Macau and looking forward to learning from many talented people from all around the world.



NEPAL  
Neesta Bhandari

Neesta Bhandari, 18 years old student of Gomendra Birtamod Secondary School from beautiful country Nepal. Being nature loving girl gardening is her hobby along with learning new things. She had actively participated in most of the quizzes and speech programme during schooling. Curious nature unknowingly make her interested towards neuroanatomy after noticing tremors in her grandfather and few neuro abnormalities in children habituated around her society. In developing country like Nepal, she noticed research in neuroanatomy as appropriate platform to meet her all enthusiasm and curiosity. so. she determined to explore the world of neuroanatomy and make an impact to give vision about neuroanatomy to her country as well as to the world.



NETHERLANDS  
June Heemskerk

June is 17-years old and has just finished her finals at the Veenlandencollege in the Netherlands. In her spare time she likes to play soccer, bake, read books and learn foreign languages. She is also interested in a wide range of subjects including engineering, linguistics, psychology and biology. Consequently because of her many interests she still isn't sure what she wants to study. She is very excited to participate in the International Brain Bee and hopes the competition might give her some clarity.



**NIGERIA**  
Chosen Amechi

Chosen is 14 years old. he is SS1, he is in science class. He likes reading, football and Christian music.



**POLAND**  
Dominika Sawicka

Dominika Sawicka is an 18-year-old student attending IB Diploma Programme at III LO im. Marynarki Wojennej RP in Gdynia, Poland. Since primary school Dominika was interested in biology and in high school she decided to focus on neuroscience. This field of biology was completely new to her but once she started learning about the human brain, neuroscience has become her passion. She aspires to study medicine and become a successful neurosurgeon in the future. In addition to science, Dominika trains kitesurfing in national team and competes in championships on international level. Finding balance between studying and sport is very important in her life. Sport has taught her self-discipline, perseverance, and time management and she uses these skills to pursue her academic goals. Dominika is an ambitious person and is eager to work hard to fulfill her dreams. In her spare time, she enjoys reading, playing the violin, and traveling.



**ROMANIA**  
Elisa Velicu

Elisa is in 11th grade and she is currently studying at National College “Gheorghe Lazăr. She discovered her passion for the brain in the 6th grade when she read the amazing story of Ben Carson a world-renowned neurosurgeon. She is also the president of the Walter E. Dandy Club Romania, a club dedicated to neuroscience for high schoolers where every month they invite leaders in the field. In addition to her studies, she is also passionate about medicine, volunteering, going out with friends, cosmology, and art. One of her favorite activities is to do medical shadowing experiences where she interacts with patients and different specialties such as cardiology, oncology, and neurosurgery. She is also a part of the Aspire Community dedicated to leadership and now she is very fascinated by research, especially on cancer. People often characterize her as intelligent, funny, and a good friend and one interesting thing about her is that she loves Balkan party music and old movies.



**SOUTH KOREA**  
Yurim Jin

Yurim is currently an 18 year old, who goes to Korean Minjok Leadership Academy. Her main hobby is reading, writing, and playing music. During COVID, she spent most of her time reading through books in her room, and learned a whole lot about the world. From then on, she always tried to seek new knowledge and learn from it. Her interest in brain science started from middle school, and is currently developing. Another favorite hobby is music. She has various talents such as playing the violin, piano, flute and even the drum!

Unlike fellow teenagers, she genuinely likes studying. Listening to rigorous courses and living a busy life is a true enjoyment for her. She wants to be a student who knows how to criticize and doubt, not just blindly accepting knowledge. That is why she wishes to study the brain, because there are so many things yet to be discovered, and the brain is indeed the source of our uniqueness. The more she gets to know about the human brain, she gets more and more mesmerized by its ability and mysterious functions. One day, she dreams of being a neuroscientist who unveils the secrets of the human brain.



UKRAINE  
Yelyzaveta  
Tsepovatenko

Yelyzaveta Tsepovatenko is an eleventh-grade student at the Lyceum №100 «Podil» in Kyiv where she studies physics and mathematics in depth. She also has a strong passion for biology and chemistry, especially molecular biology, genetics, human anatomy, organic chemistry and thermochemistry. Yelyzaveta was motivated to explore neuroscience after her grandfather's recovery from a neurological disease. Being captivated by academic challenges, she admires the complexity and sophistication of the human nervous system. In the future, she aspires to become a physician-scientist and hopes to develop Ukrainian healthcare by helping people with neurological and psychological conditions. Yelyzaveta is an active member of her school's debate club and participant in various championships. Outside of the classroom, she enjoys volunteer work, handcrafting, reading and mastering cooking skills.



UNITED KINGDOM  
Maja Olma

Maja is originally from Poland, but is currently an international student at Langley School in England and will be attending Stanford University next year. She loves both sciences and humanities: her academic interests include comparative literature, space medicine, and philosophy. She began exploring neuroscience due to her interest in the philosophy of mind, seeking an interdisciplinary outlook on the mind-body problem. She loves campy horror films, atmospheric cafes, and heated discussions with her friends. Maja is also an avid traveler, and hitchhiking is her favourite mode of transportation. Her perfect evening consists of curling up underneath a blanket with a good book and a steaming cup of tea, ideally with her cat on her lap.



UNITED STATES  
OF AMERICA  
Anmol Bhatia

Anmol is a junior at Watchung Hills Regional High School in NJ. He first became interested in the brain when he learned how difficult it could be to treat Post Traumatic Stress Disorder. He is also a two-time USABO semifinalist, a British Biology Olympiad gold medalist, and a two-time International Medicine Olympiad gold medalist. When he's not studying biology, he loves playing on his high school's Varsity Tennis Team and coaching the middle school MathCounts Team. In his free time, he enjoys playing table tennis, singing, and listening to music. Because of the Brain Bee, he has developed an interest in how the brain becomes addicted to substances and hopes to study medicine to help find a cure for those suffering from substance use disorders.

A message from the IBB Founder Norbert Myslinski

## Follow Your Heart, but Take Your Brain with You

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Some can't wait until they retire from their job.  
Some can't wait every morning to go to their job.  
Which are you? Are you following your heart?  
Don't wait. Do it now.

Don't squander your life. Don't ever rue all those opportunities and adventures of which you did not take advantage.

Opportunities? Adventures?  
What? That which makes your soul sing.  
Where? There, all around you.  
When? Then, before it is too late.

But take your brain along with you.

Take advantage of every soul,  
"Do not neglect strangers,  
for some have entertained angels unawares."

Take advantage of every minute,  
"Do not neglect the 1,440 chances  
we have every day to make a positive impact."

Take advantage of every thought.  
"Every thought we think,  
and every word we speak, are creating our future."

As you follow your heart and make your way  
in your unique world,

Strive for Humility and Forgiveness in our society.  
Strive for Passion and Compassion in ourselves.  
Passion for life, and Compassion for our fellowman.



## Past IBB Champions

- 1999: David Alpay, CANADA
- 2000: Otilia Husu, UNITED STATES
- 2001: Arjun Bharioke, UNITED STATES
- 2002: Marvin Chum, CANADA
- 2003: Saroj Kunnakkat, UNITED STATES
- 2004: Bhaktapriya Nagalla, UNITED STATES
- 2005: John Liu, UNITED STATES
- 2006: Jong Park, CANADA
- 2007: Melody Hu, UNITED STATES
- 2008: Elena Perry, UNITED STATES
- 2009: Julia Chartove, UNITED STATES
- 2010: Ritika Chohani, INDIA
- 2011: Thanh-Liem Huynh-Tran, UNITED STATES
- 2012: Teresa Tang, AUSTRALIA
- 2013: Jackson Huang, AUSTRALIA
- 2014: Gayathri Muthukumar, INDIA
- 2015: Jade Pham, AUSTRALIA
- 2016: Ana Ghenciulescu, ROMANIA
- 2017: Sojas Wagle, UNITED STATES
- 2018: Piotr Oleksy, POLAND
- 2019: Yidou Weng, CHINA
- 2020: Rahil Patel, UNITED STATES
- 2021: Vicktoriiia Vydzhak, UKRAINE

## About The International Brain Bee

The IBB's primary goal is to motivate students to learn about the brain and to inspire them to pursue careers in neuroscience. It was founded in the US in 1998 and has grown to over 175 local Brain Bee competitions in 50 countries around the world. The culmination of this program is the World Championship held every year in conjunction with major scientific conferences. The IBB was incorporated in 2018 as a non-profit educational organization with the support of five international neuroscience and educational organizations. The organizations also form the IBB's governing body with a sixth that joined in 2021:

Alzheimer's Association  
American Psychological Association (APA)  
Dana Foundation  
Federation of European Neuroscience Societies (FENS)  
International Brain Research Organization (IBRO)  
Society for Neuroscience (SfN)

## IBB Board of Directors

Jaime L. Diaz-Granados, PhD (Chair)  
APA

Tasia Asakawa  
FENS

Barbara Best  
Dana Foundation

Maria Carrillo, PhD  
Alzheimer's Association

Garth Fowler, PhD  
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FENS

Lars Kristiansen, PhD  
IBRO

Norbert Myslinski, PhD  
IBB Founder

Linda Richards, PhD  
SfN

Kathleen Roina  
Dana Foundation

Martin Saggese  
SfN

Natasha Slater  
IBRO



# 2021 IBB WORLD CHAMPIONSHIP PRIZES & AWARDS

## IBB Prizes

All competitors will receive a Certificate of Accomplishment. The top three winners will receive a monetary award of US \$3,000 (first prize), US \$2,000 (second prize), and US \$1,000 (third prize). The 2022 IBB World Champion will also receive a personalized plaque.

## IBB Neuroanatomy/Histology Award

The IBB Neuroanatomy/Histology Award\* will recognize the top student in the neuroanatomy/neurohistology component of the IBB World Championship.

The award recognises the importance of neuroanatomy/histology to understanding the brain. It consists of a US \$100 prize and a book featuring the work of Nobel Laureate Santiago Ramón Y Cajal and his contributions to neuroscience through his artistic brain imagery.

\*The award was established with a donation from Linda J. Richards, Chair of the Department of Neuroscience and Edison Professor of Neuroscience at Washington University School of Medicine in St. Louis. Dr. Richards serves on the IBB's Board of Directors and is a longstanding supporter of the Brain Bee initiative and the Founder of the Australian Brain Bee Challenge.



Through a partnership with the International Brain Bee, Leadership Initiatives will award the top three winners a full scholarship for one of their online Youth Development Programs. Awardees can choose between the Advanced Medical Neuroscience Internship or Advanced Medical Public Health Internship.

Leadership Initiatives (LI) empowers underdeveloped communities to address their own needs by partnering with local government and business leaders to provide promising individuals with entrepreneurial, leadership, and project management training. These leaders identify obstacles, develop solutions, and create new businesses to empower themselves and their communities.



# Thank You!

The IBB is truly grateful to all who have contributed to this year's World Championship.

We thank FENS and the Paris Brain Institute for their active collaboration on the event program.

We thank our 2022 World Championship Sponsors, Program Partners, and our Governing Partners for their ongoing support and collaboration.



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Website link: [https://collegeadvisor.com/?](https://collegeadvisor.com/?utm_source=InternationalBrainBee)

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