A stage for neuroscience and art: the OHBM BrainArt SIG perspective

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ABSTRACT

Science and art have been intertwined for centuries, as both embody means for humans to represent, communicate, and interpret our external and internal worlds. The collective effort to gather and organize knowledge about the brain blends well with a wide array of human creative activities, from visual and performing arts to interactive media. It thus comes as no surprise that the Organization for Human Brain Mapping (OHBM) has a Special Interest Group (SIG) dedicated to providing a platform for (neuro)sci-art: the BrainArt SIG.

Here, after properly introducing all the main characters, we follow the development of this captivating script: from its grassroots prelude within the Neuro Bureau to its recent online instantiations. In particular, we highlight our three exhibitions since becoming an OHBM SIG – Ars Cerebri, 2019; Neurodiversity, 2020; Big Data and Me, 2021 – the associated competitions, and the scientific visualization sessions that have contributed to making brain art a distinguishing feature of the OHBM annual meetings, for both in-person and virtual formats.

Our digital object, written as a piece of theater, ends by highlighting the ways art can help (neuro)science reach a wider audience as well as break out of its comfort zone: a productive happily ever after!

SCENE:
The Master of Ceremonies is standing
in front of the curtain

PROLOGUE

Welcome Guests, all alike in dignity,
To the brain art stage, where we lay our scene,
Exploring neuroscience and art affinity,
Where creativity stands in between.

Distinguished Guests, please take a seat. The story we are about to tell starts *in media res*. Two valiant and trustworthy friends, the Organization for Human Brain Mapping (OHBM) and Aperture Neuro, stand at the side of our protagonist, the BrainArt Special Interest Group (SIG), as it faces a menacing antagonist [Fig. 1]. After properly introducing the *dramatis*

personae, we will flashback to our beloved characters' past as well as flashforward to their bright future. Do pay attention, if you please, our story conveys a moral: *nothing is out of reach when neuroscience and art come together.*

SCENE:
The curtain open. Set pieces are strewn across
the floor and hanging mid-air in disarray.
STAGE CENTER:
OHBM, startled by some racket from solemnly
arranging the pieces into a pleasant order.

ENTER STAGE LEFT:
COVID-19

As (un)luck would have it, the OHBM meeting planned for 2020 in Montreal fell during a period of our lives that
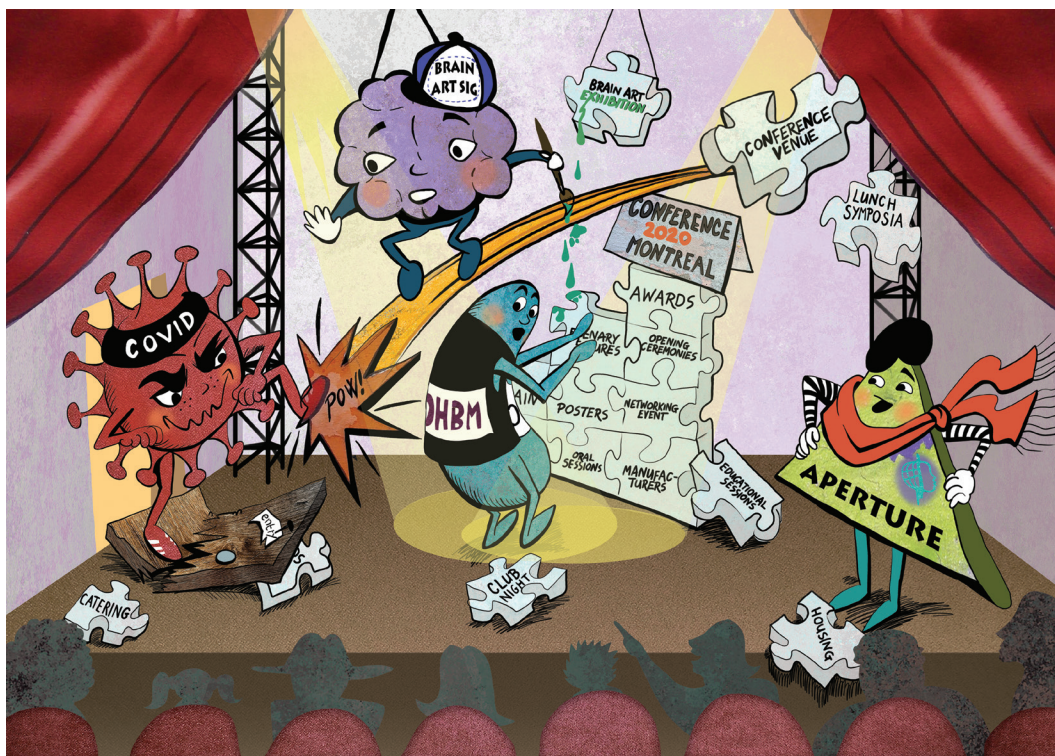
Fig. 1. **The stage and the characters.** Artwork by Zsófia Morvay for OHBM BrainArt SIG.

we will not soon forget – both because of the hurdles of the COVID-19 pandemic and because of the versions of ourselves we might have become (1). Perhaps we, and the world at large, will never be the same again. But it was *never-the-same-again* numerous times in the history of humanity – for example, the development of the printing press, the eradication of smallpox, or the discovery and mass production of penicillin (e.g., (2)). Both during and after major global events, we amaze ourselves by the resilience, strength, and creativity of which we are capable. Some would even say that hardship inspires artists to produce beautiful and moving works. We, at the BrainArt SIG, attempted to showcase this.

ENTER STAGE RIGHT:
Aperture Neuro

Scientific publishing and conferences are two areas where innovative (and perhaps necessity/adversity-driven) paradigm shifts are needed. Enormous resources are poured into the advancement of science (3,4). Yet, the current standard for the dissemination of scientific ideas/results is largely restricted to text and still images. As for scientific conferences, recent attempts to re-enact poster halls in a virtual setting (due to COVID-19 travel restrictions) have revealed many limitations in terms of both accessibility and engagement.

Moreover, given the increasing drive to communicate scientific findings to the general public, intertwining science with art provides a powerful means to engage and dialogue with a diverse audience. With this in mind, the open science

publishing platform Aperture Neuro, grown out of the OHBM Membership to enable widely varying approaches to sharing and communicating neuroscience (5,6), is set to include scientific art (sci-art) and potentially other creative works in their journal content. In fact, the BrainArt SIG's very first contribution to this brand new journal was running a competition to select the logo for Aperture Neuro!

ENTER STAGE CEILING:
BrainArt SIG

Oh, the stage fright! Did we forget to properly introduce ourselves? We are the OHBM BrainArt SIG (7). Our overarching mission is to promote a bidirectional exchange between neuroscience and the arts. Exemplifying how mutually beneficial the interaction between disciplines can be, we provide a stage for original, artistic approaches to scientific visualization, as well as room for unconventional and creative perspectives on human brain imaging. We are not alone in this exciting endeavor. Similar efforts exist, such as *Art of Neuroscience* by The Netherlands Institute of Neuroscience (8), *The Arts and the Brain* by BrainFacts.org (9), the Society for Neuroscience (SfN) (10), and the Create A Brain initiative by the Brain Art Project (11).

Although scientific publishing and conferences are often devoid of art aside from the visualizations and illustrations of the accompanying figures, channeling science through art can be educational, motivating, and inspirational to scientists and laypersons alike. For example, a pioneer of the field, Nobel Prize winner, neuroscientist,

and histologist Santiago Ramón y Cajal created detailed brain cell illustrations, still in use to this day in educational settings (12), that inspired others to create similar works of art (13). Neurologist and novelist Oliver Sacks wrote moving, best-selling stories about his patients' experiences (14), with some being adapted for performance art, such as theater, film, and dance (e.g., (15)). Photography has been at the center of the mutually beneficial exchange between science and visual arts since Eadweard Muybridge's biological motion studies (16). The work by primatologist and anthropologist, Jane Goodall, was brought to the world's attention by an amazing filmography work that showed animal interactions not imaginable at the time (17). Lennart Nilsson, a photographer, and scientist produced ground-breaking photographs of embryonic life and beyond, primarily seeking to "*make the invisible visible*" (18), thereby inspiring others to document science in innovative ways (19). Rosalind Franklin's famous X-ray photograph of the DNA was a great and cross-disciplinary step in scientific history. In fact, this photograph inspired other art forms, like a play by Anna Ziegler in 2010 (20). We could go on and on, but let us close with Shama Rahman: a scientist, a neuro-philosopher, a composer, and a singer-sitarist: the first sitar player to perform at the Antarctic Biennale and the first artist in residence for the Mi.Mu wearable gloves company (21).

To bring the brain art spirit to the OHBM community, the BrainArt SIG holds two main events each year during the OHBM annual meeting: the BrainArt Exhibition and the BrainArt Competition. The Exhibition invites established artists (and fellow scientists with artistic alter-egos) to showcase their works. Each year, an overarching theme is chosen that is timely and relevant for our community, such as the *notion of self* in 2012 (22) or different *levels of thought and scales* in 2017 (23). The Competition categories are often tailored on the general theme. It is open to OHBM members and the global community beyond and garners numerous submissions every year – making for a challenging job for our judges, namely, OHBM members who appreciate the arts and recognize the additional dimension it adds to our society.

INTRO: BULL'S EYE ON THE BRAINART SIG

Born as a grassroot collaborative initiative within the NeuroBureau forum (24), brain art events have been regular fixtures at the OHBM annual meetings since 2010. Humbly recognizing that it would be impossible for us to pay appropriate tribute to all those that brought us here, we pray: may a prequel be written soon! Meanwhile, we will focus on the gospel according to our direct experience.

Our goals are to (1) encourage artistic approaches and perspectives to understanding brain structure and function in health and disease, (2) facilitate the development of novel approaches for the visualization of scientific data, and (3) provide a model of interaction between disciplines while enhancing the outreach of OHBM.

Examples of our first aim include the "*Dream Sessions*" and "*Mandala Flow State*" projects. The *Dream Sessions* project is an art and neuroscience initiative that seeks to confront the subjective perception of dreams with an objective, quantitative analysis through EEG recordings (25). The project was undertaken by professional

Fig. 2. **Miscellaneous photos of the 2019 Exhibition in Rome.** Right upper-corner: Concentration by Patrizia Garberi; **The main piece on the bottom right corner is:** Devotional by Celesti Kozub.

artist Nathalie Regard and neuroscientists Roberto Toro and Guillaume Dumas. Julia Scott's *Mandala Flow State* video described a virtual reality neurofeedback platform, showcasing the potential of cross-disciplinary collaborations between visual art, meditation practice, and electrophysiological measures (26).

Our second aim is highlighted by our collaboration with the OHBM Open Science (OS) SIG during the OHBM Annual Hackathon event. In 2020 and 2021, the BrainArt SIG organized the "*Brain Visualization*" session. The overall goal of the session was not only to provide instruction on brain visualization, but to make brain visualizations novel, creative, aesthetic, and fun for the community (27). A beautiful visualization is not just an appealing graph, chart, or colored brain. Effective visualizations are essential to organize data, display results, and communicate information, as well as to change the way we perceive the world (28).

Our third aim encompasses the BrainArt SIG's efforts to reach individuals and groups beyond the OHBM community are multifaceted. First and foremost, we invite professional artists whose work we admire to our annual exhibition, providing a platform for them to share their talents. Overall, we strive to facilitate the dissemination of brain art to individuals who would not otherwise have direct contact with this form of communication and thinking. For example, we actively collaborate with the OHBM Diversity and Inclusivity Committee on certain children-friendly activities. In 2019 in Rome, we provided a drawing corner adjacent to our main exhibit, where children in attendance could freely draw, paint, and craft. Similarly, during the 2020 virtual meeting, we facilitated access to online artistic resources that children and

their families could enjoy at home (29,30). During that difficult year, we also sought to provide those attending the Annual Meeting online ways to cope with pandemic-induced stress. To this end, we facilitated the creation of a guided meditation video, "*A Stillness of the Mind*", a collaboration between academic and video artist Dan Lloyd and meditation and yoga instructor Tanya Dawe (31), which was made available for all conference attendees. The images, frame by frame, were from a single-subject resting-state functional MRI run, courtesy of the Human Connectome Project. Finally, in 2021, we held our first *Fireside Chat* sessions with both the artists and neuroscientists involved in our annual exhibit in attendance – where we discussed topics like how science inspires art (and vice versa), brain art, and our sense of self, and how cutting-edge scientific research in its infancy may well read like a science fiction novel (32).

ACT 1: ARS CEREBRI

The 2019 meeting in Rome celebrated not only the 25th anniversary of annual Human Brain Mapping scientific meetings but also the coming of age of the brain art movement with the official launch of the OHBM BrainArt SIG (33). To acknowledge all forms of artistic work that stem from, or are inspired by, neuroscientific research, the theme chosen for the Exhibition and Competition was *Ars Cerebri*, Latin for the Art of the Brain [(34), Supp. Materials Table 1].

We invited to the exhibit international artists exploring human mental states and psychological reality through the lens of multimodal and multidimensional creativity [Fig. 2].

Fig. 3. **A collection of miscellaneous pieces from the 2019 Competition.** From top left to bottom right: Starry Neuron by Lingyan Wang; Name the brain by Malin Bjornsdotter; Inseparability: self-decapitation in the name of science by Catalina Fabar; Self-portrait by Vania Panes Lundmark; Haiku about scientific hopes by Catalina Fabar & Martin Irani; A portrait of the brain by Cheng Wang.
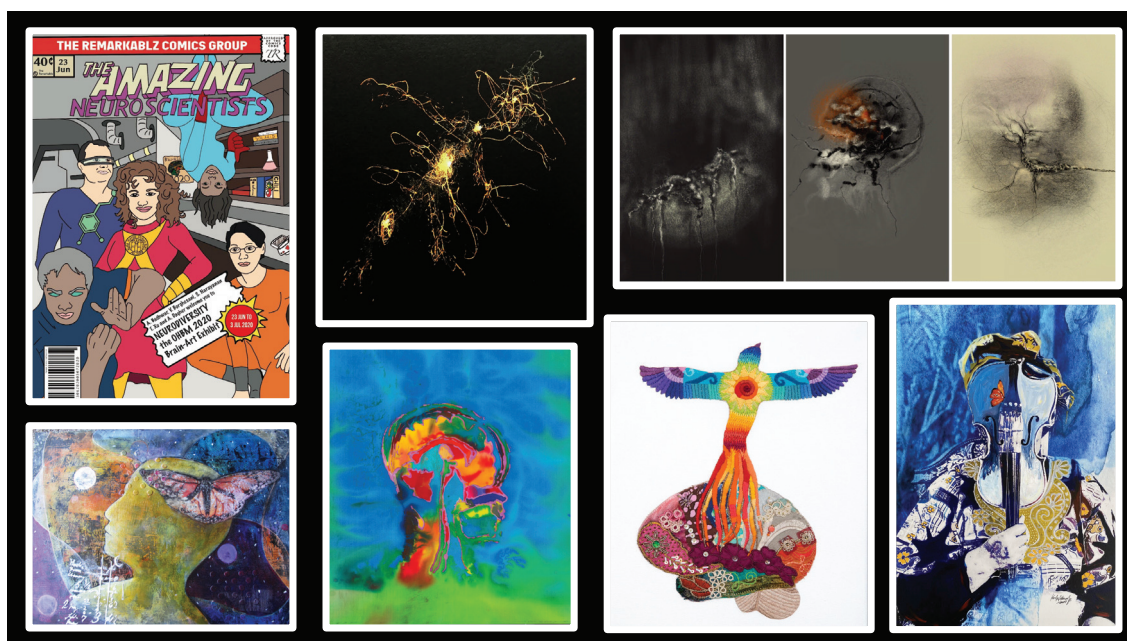
Fig. 4. A collection of miscellaneous pieces from the 2020 Exhibition. From top left to bottom right: BrainArt SIG by Katy Alexander; Neural Communication No. 35 by Richard Bright; Anxiety drawings by Liz Atkin; Searching by Urmila Das; Self-portrait by Elizabeth Jameson; Rising Phoenix by Laura Bundesen; Uplifting spirits #6 by Kunle Adewal.

Pieces by Richard Bright, Patrizia Garberi, and Nathalie Regard focused on 2D visual representations of the blurred lines between objective data and subjective experience, while Celesti Kozub's brain-shaped candle holder added a third dimension to our devotion to the brain. Furthermore, Dan Lloyd, Vincenzo Scuruchi, Valentin Riedl, and Frédéric Schuld explored unconventional audiovisual means to communicate internal states and neuropsychological phenomena. Finally, Simonluca Spadanuda's live drawing session enriched our final evening, where all interactive, real-time performances took place. Let us here take a moment to acknowledge the fundamental help received from the OHBM Student and Postdoc SIG! In concert with the Neuro Bureau, they provided our community, year after year, with a unique stage for live performances as well as to announce and celebrate the winners of the BrainArt Competition.

Inspired by the Muses, the Competition had five awards: Calliope:1D (i.e., short texts with or without accompanying images), Erato:2D (i.e., drawings, photos, paintings), Clio:3D (i.e., sculptures and installations), Terpsichore: real-time performances (e.g., singing, dancing, live sketching), and Melpomene: the results of failed attempts, bugs, or artifacts [Fig. 3]. In total, we received 100 original art submissions across the five categories. Thanks to the generosity of our community, many of the pieces physically traveled to Rome to be appreciated in person: a true gift for the meeting attendees!

ACT 2: NEURODIVERSITY

During the exclusively online activities of 2020, the BrainArt SIG chose to focus on diversity and specifically

on *neurodiversity* (35). Here, it should be noted that OHBM officially recognized the value of actively promoting and fostering diversity within its membership in 2016, thereby establishing the Diversity and Inclusivity Committee (DIC) (36). Since then, the DIC has worked tirelessly to initiate and establish positive changes on the topics of diversity, equity, and inclusion (DEI) (37). Drawing inspiration from these efforts, the BrainArt SIG developed their exhibit "*Neurodiversity*" along three axes [Fig. 4, Supp. Materials Table 2].

First, we focused on promoting groups traditionally underrepresented in science, technology, engineering, and mathematics (STEM) fields, and neuroscience in particular. Second, we strived to highlight artwork by neurodiverse populations, for whom art can provide a means of communication, therapy, solace, or pleasure. Finally, we celebrated the geographical, ethnic, and cultural diversity of the OHBM community. As examples of Axis 1, we highlight the works of two featured artists, Katy Alexander and Kunle Adewal. Alexander's project "*The Remarkablz*" (38) not only illustrates how science superpowers can be found in the most unexpected and unconventional settings but also focuses on increasing the diversity of scientist role models for children (39). Adewal, an artist and development practitioner from Nigeria (40), aims at changing the narrative surrounding aging and dementia via his series of artworks in "*Uplifting Spirits*" (41). In Axis 2, neurodiverse populations were represented by many artists, among whom Liz Atkin, a London-based visual artist with compulsive skin picking disorder, contributed a video recording and a collection of her recent works from the series of drawings "*#CompulsiveCharcoal*" (42), and Elizabeth

Fig. 5. **A collection of miscellaneous pieces from the 2020 Competition.** From top left to bottom right: The V Tree by Matthew Budde; Ordering Chaos by Mitzi Marquez; Blooming Brain by Jean Lee; Crazy time, crazy brain by Anaiah Calhoun; The golden Arbor by Lizbeth Ayoub; Brain Eyes by Jean-Francois Mangin; Cerebral lithograph by David Moreno; Empathetic person by Roberto Emmanuele Mercadillo.

Jameson, a mixed media artist with multiple sclerosis, also provided pieces from her collection inspired by her brain scans (43). Axis 3 highlighted artworks in the Competition category "*Neurodiversity & Hope*".

The 2020 Competition received 11 submissions from the OHBM community and beyond to celebrate diverse geographical, ethnic, and cultural richness [Fig. 5]. These submissions include still images, animation, 3D printed brain outlines, and paintings from children and a person living with Alzheimer's disease. Moreover, besides the brain art submissions for the "Neurodiversity and Hope" category, we also received a total of 74 original works including paintings, digital images, sculptures, and videos across three other categories: 2D images (N = 55), 3D installations (N = 14), and failed attempts (N = 5) (44).

At the 2020 OHBM Hackathon *Brain Visualization* session, we hosted three talks (45). Leonardo Iaccarino from the University of California, San Francisco, introduced basic strategies and principles to generate pleasing, yet informative and statistically correct figures. Using concrete examples from his research, Iaccarino walked the audience through the four-dimensional space delimited by *complexity vs. simplicity*, *partiality vs. completeness*, highlighting that reaching the optimal corner requires time and commitment. Reinder Vos de Wael from McGill University presented a recently developed toolbox (i.e., BrainSpace) for calculating the gradient of the brain connectome and visualizing the cortical surface (46). Qawi Telesford from Nathan Kline Institute had a hands-on tutorial about analyzing the networks and visualizing the layout of the graphs using a state-of-the-art graph analysis tool, Gephi (47). Given the success of this first edition, visualization-dedicated talks, tutorials, and live Q&A have become a core element of the collaboration between BrainArt and OS SIGs.

ACT 3: BIG DATA AND ME

At the 2021 virtual OHBM Annual Meeting, the BrainArt *Exhibition* and *Competition* focused on the theme of "*Big Data and Me*", a topic that resonates with the global community, affecting the daily lives of billions. In an age where large corporations, small businesses, and even our devices constantly collect and analyze vast amounts of data about us and our peers, the questions that relate *Big Data and Me* are intertwined. In addition, the last decade has seen the blossoming of large-scale neuroscience studies (e.g., Human Connectome Project in the United States, the UK Biobank, the Longitudinal Aging Study in India), currently queried for insight into the functioning of the brain in health and disease. Therefore, the 2021 events featured artworks that examine the process or critique the idea of using population data to aid or describe the individual. What can we learn about the individual from large-scale data? How is an individual affected by the group they inherently belong to, or conversely, how does group identity change by the inclusion of certain individuals?

Accordingly, the Exhibition had two focal points [(48), Fig. 6, and Supp. Materials Table 3]: on one hand, inclusivity, diversity, and representation of populations with

the lens of the interactions between the two extremes: the individual and the group; on the other hand, the exploration of personal suffering of individuals affected by a brain illness, dedicated to the artistic interpretations of hope and recovery, as well as the popularization of scientific understandings. Examples of the first axis are Rachel Scott and Batool Rizvi's colorful pieces that remind us how advances in our understanding of brain-behavior relationships will come from more diverse and inclusive samples, appreciating racial, ethnic, and cultural variations within human experiences. For the second axis, we explore the world of traditional Chinese medicine thanks to Trina Lion and learn to appreciate both the scientific and subjective experiences behind multiple sclerosis and synesthesia thanks to the works of Alicia Lefebvre and Clara Soto, respectively.

For the 2021 Competition, we accepted submissions for five award categories: Big Data and Me (focusing on the main theme of the year), Beautiful Mistake (anything resulting from an artifact, bug, or failed attempt), Pictures to Prose (poems or short stories), and Still Images, Videos & Animations [(49), and Fig. 7]. We received a total of 79 submissions and, as usual, it was not easy for our judges to choose the winners! Oh, and let us not forget that we also helped the newly minted OHBM Sustainability and Environment Action SIG select their new logo (50).

In keeping with our commitment to open science, together with our productive exchanges with the OS-SIG, we (a) established a special award category for our Competition (rewarding the output of hacking attempts) and (b) hosted a tri-partite visualization session (51). Sofie

Valk guided us through the steps required to organize a scientific figure so that it tells a story – "*your data's story!*". Elvisha Dhamala helped us choose the right tool to visualize network connectivity, comparing the pros and cons of various approaches. Finally, Yufang Yang showed us that it is possible to capture in one single figure something as dynamic, broad, and all-encompassing as the Brainhack community (52).

OUTRO: THE OUTER REACH

You might think that our tale ends with the overcoming the infectious antagonist: wrong! Among the many learnings of these transformative years we count the realization of pervasive mistrust in science and rampant difficulties in assessing rigor and objectivity. In this age of informational noise, to be taken seriously is an epic challenge for both scientists and artists alike. In particular, the brain art movement struggles to have its rigorous process and meaningful contributions recognized. We are here to voice how art can substantially add to neuroscience education and dissemination, as well as production and interpretation.

Let us focus first on education and dissemination. The contribution of detailed, yet aesthetically pleasing, images and animations to academic teaching is priceless (53,54). Neuroanatomy, in particular, has always benefitted from artistic talents – for example, from Leonardo da Vinci in the late 1400 (55), to Max Brödel in the 1800 (56), to modern software and infographics (57,58). In more recent years, the traveling "Body Worlds" exhibits

Fig. 6. **A collection of miscellaneous pieces from the 2021 Exhibition.** Clockwise from top left: Synesthesia by Clara Sato; Brain by Zsófia Morvay; Star brain by Batool Rizvi; Healing is a process by Trina Lion; NeuroDataFlow #9 by Richard Bright; What Thoughts in Her Head by Rachel Scott; Multiple sclerosis with electronic neurons by Alicia Lefebvre; Passing Thoughts #13 by Susan Aldworth.
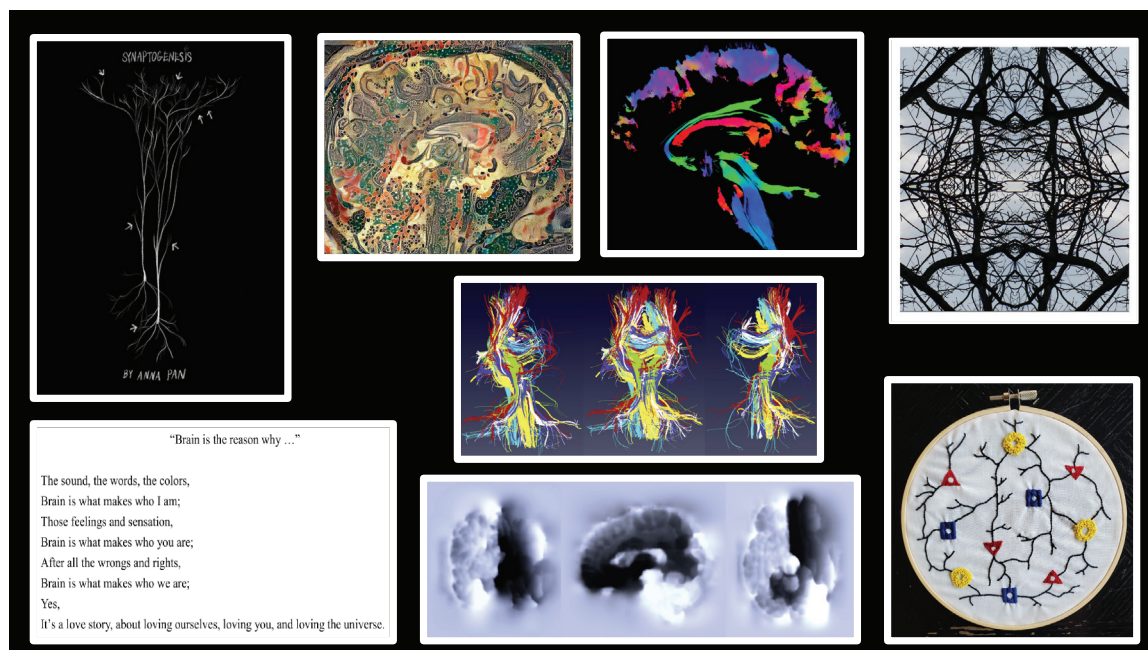
Fig. 7. A collection of miscellaneous pieces from the 2021 Competition. From top left to bottom right: Synaptogenesis by Anna Pan; Brain with big data – Ceci n'est pas un cerveau by Nikhil Bhagwat; Machine Hallucination Tractography by Taylor R Kuhn; Complex Symmetry in Brain Circuitry by Rick Garner; Brain is the reason why by Jean Lee; Abstractography by Piyush Maiti; Cerebrocumulus by Michael Granovetter; Stitched by Michelle Sheena.

employed the science of plastination to bring anatomy to the masses – 50 million visitors in over 140 cities across America, Africa, Asia, and Europe (59). These artistic visualizations of the scientific marvel we call "body" helped educate the public about its inner workings (including that of the brain), it's state in health and disease, as well as the effect of life style choices on it, and perhaps even enabled change – for example, independent visitor surveys pointed to 33% following a healthier diet since their visit with these bodies of art (60). In addition, art has also been employed to augment (neuro)science communication by creating representations of information that are accessible to a non-expert audience, for example plush "brain cells" and brain puzzles for tactile learners (61–63). Such details are crucial for raising awareness in the general public about the importance of research and how research results translate into daily applications.

Art can also provide insights into the working of the brain. In addition to being used for connecting people to unknown states and feelings, artistic production can also be a way of expression for neurological patients and their caregivers (64). Leading examples come from the Memory and Aging Center of the University of California, San Francisco (65,66), where engagement in creative activities is encouraged as an alternative means of communication and as a way to find comfort and solace, overall improving the quality of life.

Scientists are often driven by curiosity and desire to learn, yet silos and dogmas might prevent the exploration of unconventional ideas. One example is the study of creativity itself and the notable case of Anne Adams, biology teacher and researcher, who took up painting as a full-time career while developing primary progressive aphasia (67,68). Her obsession with Maurice Ravel's Bolero, culminated with the painting of a visual representation of the piece called "*Unraveling Bolero*", is particularly compelling as Ravel himself suffered from aphasia (69–71). In these instances, art can provide direct, additional, insights into how connections in the brain might come apart in a signature manner in specific neurodegenerative conditions.

Interestingly, there is a striking similarity between Adams' piece and the version generated by Pablo Castro by artificially converting Ravels' work from MIDI pitches to RGB values (72): a beautiful example of multimodal structural patterns (re)discovered by both human and artificial intelligence. Indeed, as artificial intelligence and neuroscience symbiotically investigate the root of human-defining cognitive features, the concept itself of art as a product of human creativity for human pleasure is challenged by AI-driven robot artists such as Ai-Da [(73), Fig. 8].

Overall, there is growing acceptance of the idea that narratives (including visual ones) can help convey scientific messages, promoting effective communication while preserving rigor and objectivity (74). And the reverse is true as well: artists can draw inspiration from (neuro)scientific progress – see the Thinking Head project realized by Lara Favaretto for Ralph Rugoff's 58th Venice Biennale (75,76).

ENCORE!

Don't fret, dear Guests, we are here to stay [Fig. 9]. Motivated by how the brain art movement is gaining

momentum and by the increasing awareness of our activities, we are compiling a busy roadmap to follow and milestones to reach over the next 3–5 years. Although the last two years' online exhibitions threw several challenges in our way, in overcoming those hurdles, we established a solid foundation upon which we plan to grow the SIG further. Our main plan for the upcoming year is to increase our outreach: ramp up our social media presence, publish artists' interviews as blog posts on our new website, and seek out further opportunities for the artists and their brain art. For example, we now have an Instagram account (77) and together with our already existing Twitter account (78) we will feature the work of artists and/or scientists as well as highlight accomplishments of the BrainArt SIG and the OHBM community in general. Coming full circle with our grassroot origins, we will also endeavor to strengthen collaboration with community-driven, open science practices: for instance, some of our artist' pieces are already inspiring (brain)hackers all over the world (79). Finally, one clear trend over the years has been opening up to more and more diverse media and forms of artistic expression: from predominantly 2D visual art, to sculptures, poetry, and multimedia pieces. Who knows what the future and its hybrid meetings will bring us!

As members of the BrainArt SIG, we maintain our focus on providing a platform that serves both our fellow scientists who seek to channel their artistic aspirations as

Fig. 8. **Music and visual art between human and artificial compositions.** On the left, Anne Adams' Unraveling Bolero. On the right: automatically generated translation from MIDI pitches to RGB values of Ravel's Bolero. The online interactive version can be found at: https://jidiji.glitch.me/.
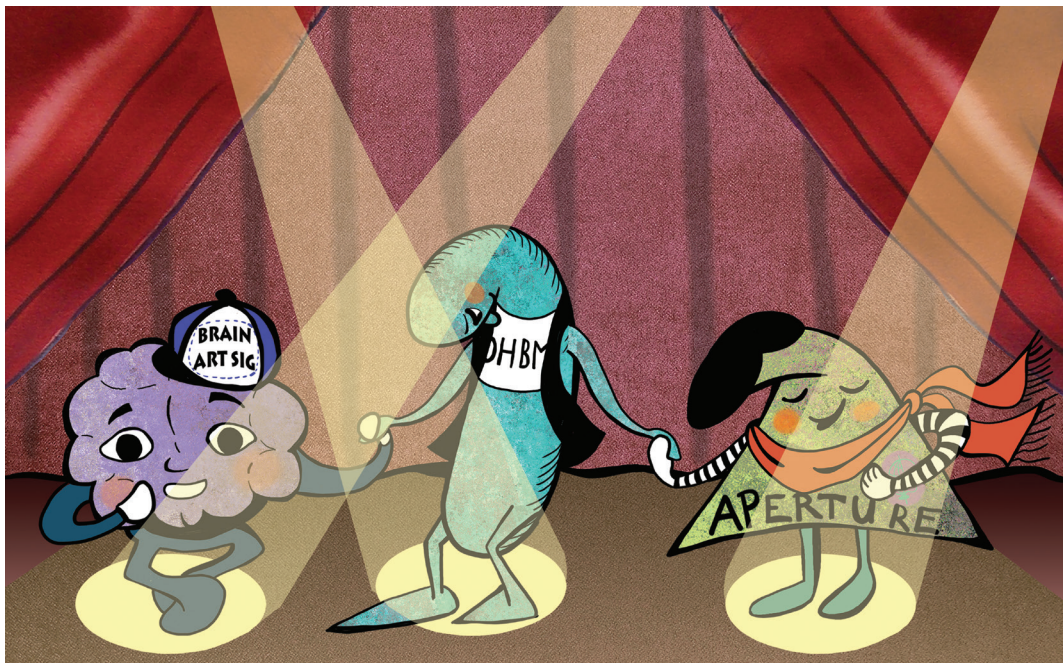

Fig. 9. **Applause. An encore? Definitely here to stay!** Artwork by Zsófia Morvay for OHBM BrainArt SIG.

well as the public at large that yearns to absorb scientific ideas in a more accessible form. In this effort, we welcome suggestions and volunteers from the entire OHBM community: let us do this together!

EXIT STAGE LEFT: COVID-19
Aperture Neuro, *OHBM, and the BrainArt SIG stand, holding hands.*
CURTAIN.

ACKNOWLEDGMENTS

SUPPLEMENTARY MATERIALS

shorturl.at/vwEIZ

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