2019 PROGRESS REPORT
International Arts + Mind Lab (IAM Lab) is a multidisciplinary research-to-practice initiative from the Brain Science Institute at Johns Hopkins University that is accelerating the field of neuroaesthetics in health, wellbeing, and learning. Formally established in 2016, IAM Lab traces its roots to the seminal 2010 Science of the Arts conference hosted by the Brain Science Institute. This report is dedicated to the late John Paul Eberhard, our advisor and friend.

IAM Lab is working to build the field of applied neuroaesthetics (neuroarts as shorthand). We define applied neuroaesthetics as the scientific study of how the brain and body respond to the arts and aesthetic experiences to improve biological, psychological, social/cultural or spiritual outcomes for individuals or populations. Applied neuroaesthetics includes and extends beyond empirical aesthetics.

When we use the term “the arts and aesthetic experiences,” we acknowledge the full spectrum of sensory, perceptual, or expressive experiences, including Visual Arts, Literary Arts, Performing Arts, Music, Dance & Movement, Media Arts, Traditional Handcrafts, Architecture & Design, Natural Environments, and Cultural Experiences.

The Arts & Aesthetic Experiences

Visual Arts
Literary Arts
Performing Arts
Music
Dance & Movement
Media Arts
Traditional Handcrafts
Architecture & Design
Natural Environments
Cultural Experiences

FROM THE EXECUTIVE DIRECTOR

Dear Friends,

We were finalizing this report just as the COVID-19 pandemic turned our world upside down. Now, 2019 seems like a lifetime ago, but the work of IAM Lab has never been more relevant. In this public health crisis, people are gravitating to the arts in every form to cope and connect. And now research is proving what we’ve always known intuitively—the arts are essential to our health and happiness.

Scientific knowledge about how the arts can be used to promote health, wellbeing, and learning is accumulating rapidly. This is a time of radical possibilities, and the potential applications of that knowledge are countless. A robust body of evidence is emerging that demonstrates that arts of all kinds can improve mobility, memory, and speech; relieve pain and the after-effects of trauma; enhance mental health and learning outcomes; build resilience and prevent disease; and so much more. Beyond their value for individuals, we see tremendous potential for arts interventions to engage stakeholders collectively in pursuit of more equitable and resilient communities.

In service of that value and potential, IAM Lab continued its work in 2019 to help coalesce the field of neuroaesthetics—particularly applied neuroaesthetics—by beginning to create shared language and a consensus framework for the field through new partnerships across sectors. At its core, IAM Lab is a collaboration. Our team partners with talented researchers, clinicians, artists, and thinkers from around the world to design, fund, and implement research.

Highlights from 2019 include our partnership with Flatart, Andrejs Kirma, Mat fine, Made by Made, Art by Kieu Thi Kim Cuong, Sergey Demushkin, Monkik, Parkjisun, Priyanka Eberhard, our advisor and friend.

THANK YOU FOR YOUR PARTNERSHIP AND SUPPORT IN 2019. WE WILL GET THROUGH THIS UNPRECEDENTED TIME TOGETHER AND LOOK FORWARD TO CONTINUING THIS VITAL WORK IN 2020.

Be safe and stay well,

Susan Mapasamen
Executive Director, IAM Lab
IAM Lab developed **Impact Thinking**, a translational research approach that applies rigorous, evidence-based research methods to arts, architecture, and music interventions. A nine-step model, Impact Thinking begins by engaging a broad and multi-disciplinary team of experts to identify a problem and review existing research and practice models to inform a hypothesized solution. After designing and conducting a study, engaging a range of research methodologies, the process continues with analysis, dissemination, scaling, and impact evaluation strategies.

Using this approach as an organizing mechanism, we are facilitating enhanced collaboration and standardization among researchers and practitioners and building a pipeline of evidence for applied neuroaesthetics. Dr. Marilyn Albert, Professor of Neurology at JHU and IAM Lab Scientific Director, provides guidance across IAM Lab’s research portfolio along with our newly formed scientific advisory board of distinguished experts. We are pleased to announce the addition of Dr. Tasha Golden to our team as Senior Arts in Health Research Scientist. Dr. Golden is a public health researcher who oversees IAM Lab’s research projects. Under her leadership and in partnership with many outstanding researchers, our Impact Thinking portfolio is growing and diversifying.

**Impact Thinking**

1. **Problem Identification**
2. **Collaborative Discovery**
3. **Research Design**
4. **Research Implementation**
5. **Analysis**
6. **Refine–Retest–Recommend**
7. **Dissemination & Scaling**
8. **Evaluation**
9. **Hypothesis**
GUITAR FOR PARKINSON’S DISEASE (GUITAR PD)

In collaboration with IAM Lab, the Johns Hopkins Center for Music and Medicine conducted a pioneering pilot study of the benefits of guitar lessons for people with Parkinson’s disease (PD). Led by Co-Principal Investigators Dr. Alexander Pantelyat, M.D., and Dr. Serap Bastepe-Gray, M.D., Guitar PD builds on a base of research on music therapy for Parkinson’s disease that includes listening to music, singing, dancing, and playing instruments, but it breaks new ground by using guitar lessons as an intervention for PD. The study is complete, and the manuscript is being prepared for submission to an academic journal.

“Our vision for the future is that music teachers and music therapists across the world will be trained and certified in a standardized therapeutic guitar lesson program for PD patients,” Pantelyat said. “This certification would include research-based methods for applying guitar technique therapeutically, training on the challenges this population faces, and techniques to effectively work with those challenges. Our hope is that this study, in combination with future study findings, will help shape and spur program development.”

MUSIC AND THE BRAIN

Music and the Brain is a groundbreaking think tank envisioned by One Mind President Brandon Staglin and established as part of the organization’s Applications for Serious Psychiatric Recovery (ASPIRe) initiative. Co-chaired by Susan Magsamen and Dr. Eric Nestler, M.D., Music and the Brain draws upon numerous studies demonstrating that performing or listening to music can positively affect mental health. Music and the Brain expands and complements NIH’s Sound Health initiative by consolidating and advancing the evidence related to music’s role in the prevention and treatment of severe mental illness. Led by IAM Lab’s Dr. Tasha Golden, the project’s first deliverable is a broad international scoping review of the literature regarding uses of music in the treatment of serious mental illness, including schizophrenia, major depressive disorder (MDD), generalized anxiety disorder (GAD), bipolar disorder, and post-traumatic stress disorder (PTSD), to inform the development of pilot studies of the same.

SOUND RESONANCE

In partnership with the Polytechnic Institute of Milan, this pilot study uses perceived measures (Geneva Emotional Music Scales-9) and biological measures (body temperature, heart rate variability, and skin conductance) to determine the effects of live and recorded sacred music on listeners. Led by Dr. Augusto Sarti, researchers found large variability between participants’ emotional responses to different pieces of music. The study continues to examine the differences between responses to live and recorded music.
CHILD FRIENDLY ENVIRONMENTS

To expand and improve the use of art and aesthetics in the service of patients, families, and staff, IAM Lab evaluated the site plan of the Johns Hopkins Charlotte R. Bloomberg Children’s Center and provided research-based recommendations. Key elements included improvements to the natural environment, color washes, cohesive visual themes, room for common area interaction, and improved wayfinding.

KENNEDY KRIEGER CHILDREN’S HOSPITAL SENSORY CARE ROOM

This partnership with the Kennedy Krieger Institute and Reddymade Architecture brings together a variety of medical and health professionals and key stakeholders including neurologists, neuropsychologists, physical therapists, child life experts, and parents to build a better hospital room for children who are waking up from a coma. A primary goal is to promote regular sleep/wake cycles by regulating light and sounds and minimizing background noise and other disruptions. This project also explores the role of personalized sensory inputs such as visual projections, scents, and sounds in reducing patient agitation.

VIRTUAL REALITY FOR CREATIVE ARTS THERAPY

Working together with Drexel University’s Dr. Girija Kaimal and Dr. Arun Ramakrishnan, this project examines whether art therapy can be integrated into virtual reality-based expression to enhance patient care. Researchers are using Google Tilt Brush technology to allow patients to paint in a 3-D virtual space. Research will measure reward perception using functional near-infrared spectroscopy, and self-perceptions of mood, stress, anxiety, and self-efficacy.
LITERATURE

ONE BOOK

In collaboration with Enoch Pratt Free Library, Baltimore City Public Schools, and the T. Rowe Price Foundation, this project provides 12,000 copies of the same book to Baltimore City 7th and 8th graders to read and discuss with classmates and teachers over a semester. Drawing from the bibliotherapy research—the use of literature as an intervention for mental health—the One Book project explores reading and storytelling as a way of healing and growth for schoolchildren and their communities.

One Book also provides students with opportunities to have an open dialogue about their personal experiences and to artistically express themselves as means to build self-understanding, identity, and connection.

This year’s book, “The Long Way Down” by Jason Reynolds, is a springboard for discussing the experience of gun and street violence. To assess changes in attitudes and behavior after reading the book, IAM Lab partnered with Dr. Karl Alexander of Johns Hopkins University (Emeritus) to conduct pre- and post-program surveys of more than 1,200 students and with Dr. David Faunknown of Morgan State University to conduct follow-up focus groups.

TAILORED ACTIVITY PROGRAM (TAP)

Through a collaboration with the Hopkins ElderPlus Program and Drexel University, the Tailored Activity Program (TAP) allows patients with dementia to participate in arts and cultural activities based on their personal preferences. Researchers hypothesize that identifying activities that the patient finds enjoyable and engaging will reduce neuropsychiatric symptoms and increase the quality of life for the patient and caregiver.

Building upon previous research conducted by Dr. Laura Gitlin, the current study adapts the TAP protocol to an outpatient day program for people living with dementia. Dr. Marilyn Albert and Dr. Alexander Pantelyat, M.D. designed the study to explore the potential biological underpinnings of the TAP intervention, collecting biomarker data including salivary cortisol and alpha-amylase levels of participants.

VETARTSPAN

As a Creative Forces Community Connections demonstration site, the Straz Center for Performing Arts in Tampa, Florida designed and implemented a suite of arts programming to increase community-based arts engagement opportunities for military service members and veterans, their families and caregivers, and the general public. IAM Lab partnered with Straz artist-in-residence and VetArtSpan Director Fred Johnson and colleague John Parks to conduct a review of the pilot program, which included events, curriculum, multi-week programming, and a variety of communications products (videos, podcasts, website).

After reviewing qualitative data on the programs, IAM Lab made recommendations for strengthening and evaluating future programming.

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Creating learning experiences around the arts and health, wellbeing, and learning is central to IAM Lab’s mission. In 2019, we launched a series of interactive workshops and talks and partnered on important outreach projects designed to create a shared understanding of the role of the arts in health.
The Dialog Series is a set of immersive learning experiences that bring together researchers, clinicians, and practitioners in the Johns Hopkins community with their peers in the Baltimore community. These important conversations were live-streamed and recorded to reach audiences far and wide. Dynamic presenters included:

- Dr. Tasha Golden, public health researcher and innovator—Advancing Health Equity: Embracing the Creative Process to Evolve Health
- Dr. James Gordon, M.D., Founder, Center for Mind-Body Medicine—Addressing Trauma Through Immersive Healing Techniques
- Jill Sonke, Director, Center for Arts in Medicine at the University of Florida—Arts in Health and Wellbeing: State of the Field and Innovations in Practice

Creative Forces panel of experts, National Endowment for the Arts (NEA) in partnership with the U.S. Department of Defense and Veterans Affairs—Creative Forces: Improving Health and Wellness of the Military Through the Arts.

Central to our role as a field-builder is our goal to develop career pathways for applied neuroaesthetics researchers. This includes offering learning experiences for innovative thinkers and students with related interests and skills. In 2019, we hosted both a postdoctoral fellow and graduate-level intern to build their experience in translational research in neuroaesthetics, and we look forward to welcoming more students in the future.

Creating Healthy Communities: Arts + Public Health in America is a two-year national initiative designed to accelerate innovation at the intersection of the arts, community development, creative placemaking, and public health.

Led by the University of Florida Center for Arts in Medicine and ArtPlace America, the initiative released a white paper entitled Creating Healthy Communities through Cross-sector Collaboration in partnership with several contributing organizations including IAM Lab. This document was the result of conversations and research conducted over two years with hundreds of researchers, practitioners, policy makers, educators, and funders.

Designed for members of the public health sector and other key stakeholders, the white paper frames the value of the arts and culture for advancing health and wellbeing in communities. It offers examples of impactful cross-sector collaborations that engage arts and culture to address five critical public health issues: collective trauma, racism, social isolation and exclusion, mental health, and chronic disease.

These concrete examples inform the paper’s recommendations and call-to-action, which assert the value of the arts and culture for community health transformation, and for advancing the culture of health being envisioned today.
A SPACE FOR BEING

A Space for Being brought together IAM Lab with Google Hardware, Muuto, and Reddymade Architecture to explore the influence of design on human biology through an immersive neuroaesthetics exhibit at the Salon de Mobile, the largest international design event held annually in Milan, Italy. Google designed and built a 6,000 square foot exhibit space with three unique rooms as the centerpiece. IAM Lab worked with architects and designers to curate different elements for each room—including color, sound, light, textures, and scent—to elicit varied responses from visitors. To capture the effect of each room, Google gave visitors a soft wearable band with sensors capable of measuring biometrics and physiology, such as heart rate. At the end of their tour, visitors were presented with a colorful readout of their biometrics in each room, providing real-time biological responses. Participants gained insights into the personal ways design influences well-being. The project received wide coverage in domestic and international media.

AWARENESS BUILDING

MEDIA EMPATHY FOUNDATION

IAM Lab’s Executive Director Susan Magsamen is Co-Founder and Chief Knowledge Officer of the Media Empathy Foundation, an organization working to destigmatize the portrayal of severe mental illness (SMI) in news, entertainment, and social media and shape a narrative that fosters empathy and support for patients, families, and providers. The ME Foundation will work with all forms of media to create content, guidelines, training, and recognition and awareness campaigns that focus on depicting SMI fairly, accurately and without judgment.

LUMINARY SCHOLARS

IAM Lab draws key insights from a group of visionaries in fields ranging from healthcare to technology, music, science, and spirituality. These Luminary Scholars are important ambassadors in their respective sectors, raising awareness of IAM Lab and the field of neuroaesthetics more broadly. They also help to shape our mission, research, and education agenda. We were pleased to welcome renowned architect Jim Olson, founding partner of Olson Kundig, as a new Luminary this year. We look forward to adding new scholars in 2020.
COMMUNITY BUILDING

Our community is the heart of our work—where we turn for expertise and input, partnership, and data on the field. This year, we continued to build our community through targeted initiatives within Johns Hopkins, online, and across our global network.

In 2019 IAM Lab connected with researchers, clinicians, and arts practitioners all over the world. We are pleased to report that our database is growing rapidly. We now engage with:

- 650 organizations
- 8,000 individuals
- 150 field events

As we continue to gather information, we are laying the initial groundwork for a taxonomy to define and map the field of applied neuroaesthetics. This high level of detail also allows us to better target our outreach and communications and engage community stakeholders more meaningfully.

The IAM Lab database includes a diverse set of stakeholders across fields, sectors, and impact areas.
Coalescing the neuroaesthetics community begins with defining its purpose and reach and identifying key stakeholders. We launched exploratory field mapping work in 2019, seeking to better understand the people, art forms, and research approaches that support applied neuroaesthetics.

We began by engaging an advisory group to develop a model ecosystem of applied neuroaesthetics. After presenting them with an initial straw man of the model, we then gathered their feedback through one-on-one interviews.

The result, at right, is a first draft visual model that demonstrates the many elements of applied neuroaesthetics and adds key definition to the field. This project was an important precursor for the recently launched NeuroArts Blueprint project with the Aspen Institute, discussed in the next section of this report.
ORGANIZING THE HOPKINS COMMUNITY

BLOG

Our blog took off in 2019, thanks to a dedicated corps of staff and contributing writers. In alignment with our goal to be a “go-to” source for neuroaesthetics, we commissioned and curated newsworthy content on leading ideas in the field and the people and institutions behind them. In total, we authored 25 new blog articles in 2019 as well as a landmark guest post in the Dana Foundation’s peer-reviewed publication, Cerebrum.

Top Three Blogs of 2019

- Dialog Series: Why The Arts are Essential to Public Health Research - 800 shares
- Can You Mend a Broken Heart through the Arts? - 720 shares
- The Sound Resonance Project: Can We Measure the Emotions of Music? - 440 shares

Read the latest at: ArtsandMindLab.org/Blog

NEWSLETTER AND SOCIAL MEDIA

We also continued to share our quarterly newsletter with our growing community. It’s our round-up of news and information shaping our work at IAM Lab and within the field. Interested parties can join our mailing list to receive the newsletter and the monthly blog digest by visiting our website. Subscribe here.

Follow us on social media:

@artsandmindlab

PRESS

We reached new audiences through mainstream press mentions in:

- Forbes
- Fast Company
- Financial Times
- Dwell Magazine / Wallpaper* / Dezeen
- Johns Hopkins Magazine
Building on the momentum from our 2019 partnerships and projects, we’d like to preview some of our work in 2020. We will continue to focus our efforts in the strategic priority areas of translational research, education and outreach, and community building, and we will anchor our work in a new collaboration with the Aspen Institute.
WHAT’S NEXT

IAM Lab’s Susan Magsamen co-directs the program Board of thought leaders to guide the project forward. Lionsgate Film, will co-chair an interdisciplinary Advisory Affairs at Mount Sinai Medical Center; and Michael neuroscientist and dean of Academic and Scientific Society Program. Renee Fleming, renowned soprano IAM Lab and the Aspen Institute Health, Medicine and The NeuroArts Blueprint is a partnership project of field of neuroarts.

Launched in 2019, the NeuroArts Blueprint: The Science of Arts, Health and Well-Being, is designed to strengthen, standardize, and propel the emerging field of neuroarts.

The NeuroArts Blueprint is a partnership project of IAM Lab and the Aspen Institute Health, Medicine and Society Program; Renee Fleming, renowned soprano; and co-founder of Sound Health Initiative; Eric Nester, neuroscientist and dean of Academic and Scientific Affairs at Mount Sinai Medical Center; and Michael Paseomek, originator and long-time president of Lionsgate Film, will co-chair an interdisciplinary Advisory Board of thought leaders to guide the project forward. IAM Lab’s Susan Magsamen co-directs the program with the Aspen Institute’s Ruth J. Katz, director of the Health, Medicine and Society Program.

The NeuroArts Blueprint will articulate and advance the scientific foundation and evidence for the role of arts in health and wellbeing through the lens of research, practice, community-building, policy, funding, and communications. With an emphasis on translation, the Blueprint will culminate in a roadmap to bring neuroarts into the mainstream. We will define the value proposition that invites sustainable public and private investment, identify training and professional development pathways, outline funding and policy strategies, and craft a communication plan to attract broad interest and more.

To inform the NeuroArts Blueprint, and bring together as many disparate voices as possible, we are convening a series of highly interactive, interdisciplinary meet- ings, and commissioned reports. Stakeholders and pioneers—in health care, neuroscience, public health, community development, art and architecture, technology, communications, philanthropy, and business—will be at the table for this work.

TRANSLATIONAL RESEARCH

Our research priorities for 2020 include completing several in-process Impact Thinking projects and disseminating findings broadly to researchers, clinicians, and practitioners. IAM Lab will also convene a Scientific Advisory Board to review our growing research portfolio and make recommendations. One deliverable is a report to distill lessons learned from our experience testing the Impact Thinking framework thus far.

We will also develop a Scholars program to identify and convene researchers conducting novel studies in applied neuroaesthetics. Through the Scholars program, we hope to create synergy among researchers with similar goals and continue to strengthen and standardize research in applied neuroaesthetics.

OUTREACH AND EDUCATION

IAM Lab is focusing its 2020 education and outreach efforts on developing foundational resources for practitioners. We are currently curating content for a “Neuroaesthetics 101” learning experience for frontline practitioners in a variety of fields. This course will provide an overview of the impact of the arts and aesthetics on the brain and equip practitioners like teachers, care providers, community organizers, mental health workers, and artists with tools and strategies to incorporate into their own work.

We will also continue to partner with other universities and centers to create education and outreach opportunities. We will serve as a field placement site for the Uniformed Services University of the Health Sciences Arts, Health and Wellbeing clinical elective for third and fourth-year medical students. Finally, we look forward to onboarding a director of outreach and education in 2020 to continue to expand this area of work.

COMMUNITY BUILDING

In the near-term, we are responding to requests from our community to share how the arts can support our health and wellbeing during the pandemic. In April 2020, we launched the COVID-19 NeuroArts Field Guide. This ongoing series showcases evidence-based art ideas that can help address issues created or exacerbated by the pandemic including stress, burnout, loneliness, and loss. We will also share the role and value of arts in social justice, amplifying the work of practitioners and programs in this movement.

In 2020, we will continue our core communications and community building efforts, including expanding our database of contacts, publishing original blog content, driving conversations on social media, and disseminating a quarterly newsletter. We will also continue to build our community at Johns Hopkins and across Baltimore through the Hopkins Arts in Health and Wellbeing project by mapping and describing assets, connecting similar programs and people, and expanding out to the broader Maryland/Baltimore community. Finally, we will begin planning a signature Science of the Arts conference to be held in Baltimore in Fall 2021/Spring 2022.

OUR GROWING TEAM

In early 2020, IAM Lab moved into a new home on the Mt. Washington campus of Johns Hopkins. We are pleased to be co-located with a beautiful conference center in an especially green and pastoral slice of Baltimore City, and we are eager to continue to grow our team. We are filling key full-time positions to expand our research capacity and seeking talented research assistants to join our team for part of the academic year.

CONCLUSION

At IAM Lab, we are committed to growing the neuroarts ecosystem through innovation, collaboration, and rigor. We will continue to fuel connections across disciplines, accelerating our work and the work of others. Our north star is creating a field where the arts are seen as essential to health, wellbeing, and learning.

Since 2010, we’ve gone from a vision to a plan to a start-up. Now, with many lessons learned, we are a full-fledged scale-up. Thank you to the many advisors, colleagues, and partners who made our work in 2019 so meaningful and positioned IAM Lab to embrace exciting new opportunities—as well the extraordinary challenges—facing us in 2020.
“This is precisely the time when artists go to work. There is no time for despair, no place for self-pity, no need for silence, no room for fear. We speak, we write, we do language. That is how civilizations heal.”

Toni Morrison
Author, Nobel Laureate