This showcase offers a look into the process and final prototypes developed by the 10 teams. We encourage you to listen, watch and interact with the prototypes to explore the exciting experiences and innovations that each team has developed, and open your minds to the possibilities at the intersection of arts and technology. As you browse through the 10 prototypes, you may find the summary of each prototype below useful in helping you understand the motivations and objectives of each project. If you prefer to watch recordings and demonstrations of each prototype, you may do so in this two-part video:

Part 1 – https://go.gov.sg/axtlabpt1

Part 2 – https://go.gov.sg/axtlabpt2

Organised By
NATIONAL ARTS COUNCIL SINGAPORE

Supported By
MCCY Ministry of Culture, Community and Youth

Technology Partner
NUS National University of Singapore

Venue Partner
NMS National Museum of Singapore

ABOUT THE ARTS X TECH LAB

The Arts x Tech Lab is the National Arts Council (NAC)'s inaugural lab that fosters collaboration between the arts and technology sectors. The Lab is designed to empower creatives, artists and technologists to engage in innovative experiments and collaborations. It also aims to build capabilities, co-drive innovation and support changemakers from within the arts and technology sectors.

The Lab focuses on supporting arts-technology ideas across two tracks.

OPEN TRACK

- Reimagining artistic practice and new ways to reach audiences
- Connecting people from different communities
- Art/performance space of the future

NATIONAL MUSEUM TRACK

- Blending arts and heritage experiences
- Working with technology to offer new perspectives to the National Collection
- Working with technology to enhance museum-based learning

Through an Open Call conducted in early 2021, 10 participants were selected to take part in the eight-month Lab, across two phases, each of which was customised to the readiness of the participants and their project ideas. In order to support the development of a prototype or work-in-progress experience, the Lab offered a range of support and resources across two phases including workshops by experts, networking opportunities, mentorship and consultancy, peer learning opportunities, feedback from an expert panel and funding support.

PROJECT TITLE:

ARCHITECTS OF REALITIES

Name of team members: Khairul Kamsani, Nelson Chia, Joanne Ho, Thong Pei Qin, Cherilyn Woo and Timothi Lim

"Architects of Realities" is a pilot programme for an intermedial performance dramaturgy lab exploring how directors research with actors in live performance, using immersive digital technology such as projection mapping and virtual reality. This programme experiments with the future of performance space by investigating the collision of bodies and technology through the existing methodologies and practices of actor-training. The experiments involve overlapping multiple virtual spaces on the physical space of the body to question the duality between live/ real (phenomenological) and fictional (semiotic).

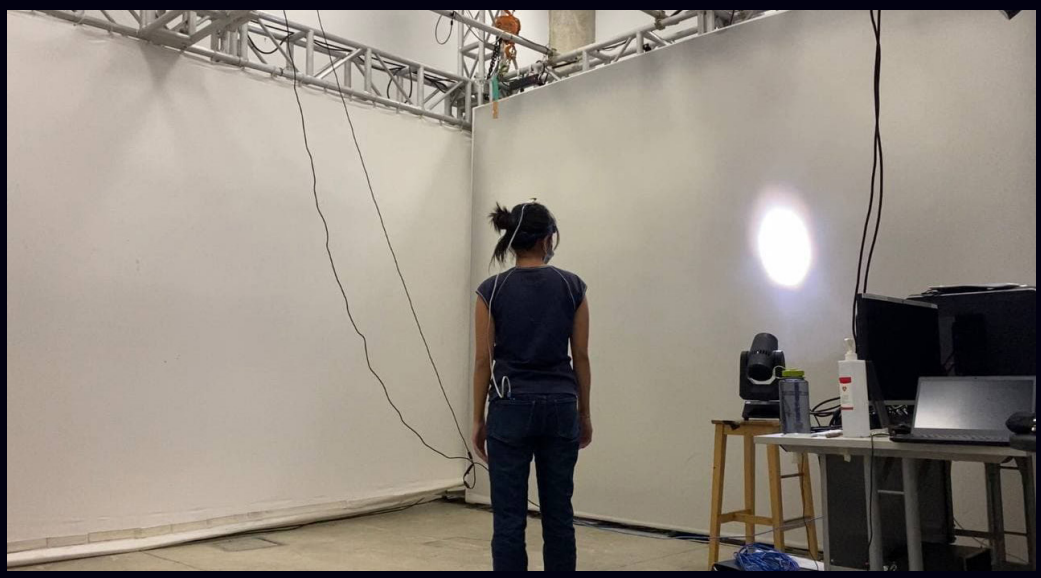
By observing the cycle of influence and response between the actor's body and technology in a series of eight (8) Practice-as-Research sessions, we hope to discover elements that culminate in a few alternate methods of immersing the actors and audience into an experience of multiple realities. Is there a way to bring performance to unconventional theatre spaces, real or virtual?

PROJECT TITLE:

MARCS

(MODULAR ACTION AND REACTION CONTROL SYSTEM)

Name of team members: Bao Songyu, Alina Ling, Justin Ong



Modular Action and Reaction Control System (MARCS) is a programmable ecosystem of modules designed for electronic prototyping in the execution of artistic projects. MARCS aims to streamline the use of electronic hardware, equipping users with platforms to create extensive and efficient control and communication systems.

The objective of MARCS is to lower the technical barriers of manoeuvring electronic hardware, targeting users from creative disciplines who are limited by existing technological tools. A key feature of MARCS' platforms is modular communication, allowing for data-flow across multiple boards within a network. This enables users to expand the control of sensors and actuators used in interactive devices and installations, making set-up and troubleshooting more efficient. MARCS modules are also made compatible for serial communication with visual and multi-media software such as Processing, TouchDesigner and MAX msp for digital artists.

With flexible communication and multiple control functions built into one wireless and comprehensive tool (Albatross), we see the application of MARCS in the execution of large-scale kinetic installations, interactive or performative works. A community of projects that use MARCS begins with works 'Entropy' which tests inter-network communication and 'Moving Heads' which explores complex data processing and real-time actuation.

PROJECT TITLE:

THE EVOLUTION OF TRADITIONAL ART WITH NEW TECHNOLOGIES

Name of team members: Qin Zhan Bao | 秦占宝 （队长兼艺术总监）, Ian Kwan | 关锦天 （统筹兼行政）, Lin Jia Rui | 林佳锐 （联络兼文书）, Lee Yee Ching | 李红筠 （文书兼联络）

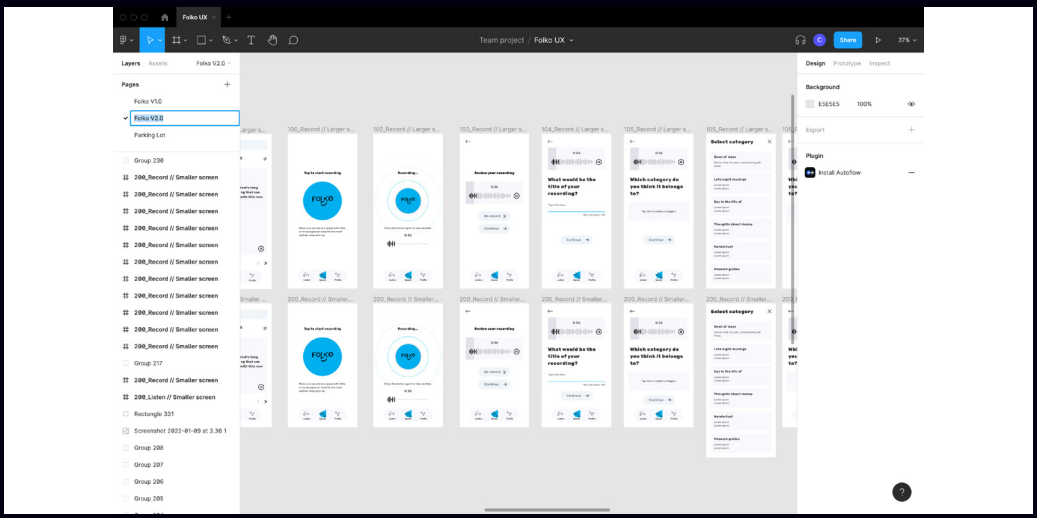
Chinese Opera had originally been performed in outdoor and open spaces, or in rowdy tea houses with noisy audiences and street peddlers. Under those circumstances, the percussion instruments needed to rise above the environmental sounds to reach the audience. Today, Chinese Opera is performing in better-equipped theatres in quiet and sometimes soundproof indoor venues where audience etiquette is that of maintaining absolute silence and the instruments would not need to rise above environmental noises.

This project therefore seeks to modernise how Beijing Opera is performed through an audio efficacy experiment. The team is testing with sound-absorbing materials, re-positioning of musicians to eliminate frequency clashes and experimenting with a remote accompaniment or dual-stage concept with advanced audio technologies that cater to audiences with different needs as well.

PROJECT TITLE:

FOLKO - STORYTELLING REIMAGINED

Name of team members: Christian Teo, Melody Koh



Folko is an audio-based, publicly available app which reimagines the spoken word through shared storytelling. By contributing and tuning in to short-form audio ‘chapters’, storytellers join interconnected narratives on a myriad of themes, including Day in the Life of, Late Night Musings, Good old’ Days and Wanderlust.

Folko will explore the creation of niche ‘story channels’ for organisations. For the National Museum of Singapore, “the day Sang Nila Utama stepped into a time machine” is being conceptualised to reimagine the experience of our National Collection.

Where visually-intensive platforms sacrifice authenticity for virality, Folko uses audio to amplify the immediacy and intimacy of emotive storytelling. Where podcasts and audio platforms prefer ‘closed door’ expert monologues, Folko celebrates creative collaboration and stories from the ‘man on the street’. Folko’s street-friendly user experience and rapid story-recording sessions allow storytellers to easily partake in stories on-the-go.

Folko will carve a space where storytellers are nurtured, feel safe to share their experiences, and celebrated by global audiences. With the release of our ‘open beta’ in December, we are excited to welcome the voices and perspectives of Singaporeans across generations and backgrounds.

In 2022, we look to bring Folko to content creators and users globally.

PROJECT TITLE:

IN TEMPO SILICO

Name of team members: Lynette Quek, Dirk Stromberg, Prashanth Thattai, Pete Kellock

In 2021, we are entering a new paradigm in which increasingly-powerful technologies are enabling increasingly- sophisticated collaborations between people and machines, and remote performance via the web is becoming a key ingredient. In Tempo Silico aims to explore a novel music collaboration paradigm involving live musicians performing advanced electronic instruments with an AI music partner - a human/computer collaboration for the COVID and post-COVID world.

The fundamental research for the AI system was developed in Prashanth Thattai's academic work on MASSE, a system for real-time human-machine improvisation of rhythmic Carnatic music (NUS, 2020). MASSE provides complimentary rhythmic support to human musicians in laboratory settings. We are collaborating as a team of artists, academics, technologists and entrepreneurs to use and extend it across diverse performance scenarios alongside other innovative performance technologies, developing a real-time web-based performance. The outcomes of the collaboration include performances with visual and sonic elements involving human improvisers using and collaborating with a range of technologies. Through experiment – technical development as well as improvising and writing music together – we aim to deliver strikingly dramatic and innovative performances, to identify the potential of the system in music and music-technology education, and to explore avenues for future commercialisation.

PROJECT TITLE:

HISTORY WITHOUT WORDS: THE SCANDAL OF THE HIDDEN PAINTING

Name of team members: Justin Loke, Jason Koh, Leah Ge

As a departure from the linear interpretation of history into more viewer-centred narratives, this project merges new media technology with art history methodologies.

The project will discuss possibilities such as gamification of the museum experience, integrating the element of 'play' into the audience's phygital engagement. The interactive visual narrative will be modelled on a literary form known as 'speculative fiction' where fiction and history are weaved into our reality and consciousness.

Through focusing on the historical painting 'The Esplanade from Scandal Point' and its watercolour predecessor, the project expands art analysis into a more open-ended method of thinking-via-imagining. The numerous discrepancies between the two paintings create room for discussion that can be prompted through the creative use of storytelling and user interaction.

In the proposed web app, the target audience will be able to experience text-based storylines, point-and-click clue finding, atmospheric audio, all presented in an aesthetically designed interface. The experience will ultimately lead to the last piece of missing information that needs to be unlocked, whether through AR or QR scanning of a physical object, in the museum itself, thereby bringing countable footfall that reflects the level of engagement the project has achieved.

PROJECT TITLE:

SPEAK YOUR MIND

Name of team members: Chan Li Ping, Ng Fong Yee

speak your mind is about encouraging creative self-expression, sharing thoughts and stories, interacting meaningfully with peers and the community amongst children with special needs.

We hope to develop digital tools for alternative communication and expression available to this community. For this project, the focus is on drawing (using digital means) and finding the right words to express a thought/a story. Our process will be guided by the children's interactions and responses with the tools. We will run a series of online, hands-on experience sessions with participants to experiment with the prototypes we develop.

1. Hand Gesture and Movement driven user interface (using only the webcam on a computer or laptop) to select and move objects on the screen, as well as on an experimental drawing interface.

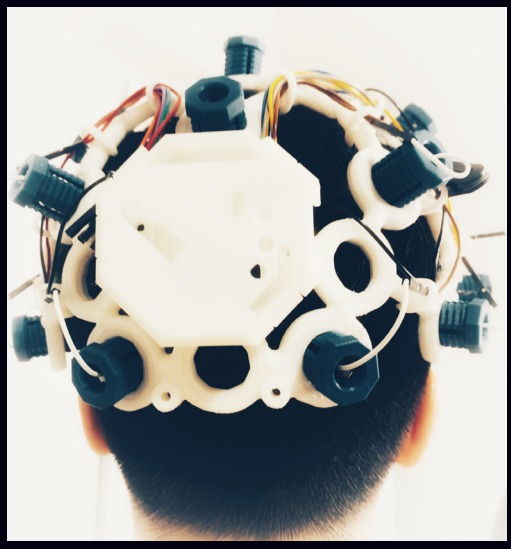
2. An Augmentative and Alternative Communication [AAC] app add-on that aims to play a supporting role in communication, informed by machine learning and word prediction to say what is on your mind whilst on the go. It is not intended to be a holistic AAC system for language learning.

We intend to publish the thought process, materials and tools used, and results from the experience sessions as a potential source of information for the community.

PROJECT TITLE:

A SPACE FOR DIGITAL ATTUNEMENT

Name of team members: Spang & Lei



A Space for Digital Attunement is a durational performative experience using biofeedback loops from brainwaves of live audience-participants (Attunees). Two Attunees seated across each other, connected via the Attunement Apparatus. This interconnector captures and transforms live brain signals into transitory light and sound compositions.

Attunees are guided by an performer-artist (Attuner) through a three-stage experience. Stage One - Sedimenting; Attunees will enter into the Attunement Apparatus by adorning electroencephalogram (EEG) headsets. Light and sound in the environment will be orchestrated based on both Attunees incipient brainwave signatures. Stage Two - Swirling; the Attunement Apparatus will initiate contact between Attunees. Both sets of brainwaves will be swirled into Attunement Apparatus to form a collective light and sound representation of their thoughts. This is the moment when Attunees are encouraged to "start a dialogue" with their counterpart via their thoughts. Finally in Stage Three - Dispersing; Attunees can continue their "mind" conversations for as long as they please until they choose to unhook themselves from the Attunement Apparatus.

What happens when two strangers are connected remotely via EEG headsets? Can one communicate without words and gestures; using only our thoughts? Is it possible for two minds to be in the moment simultaneously?

PROJECT TITLE:

REAL-TIME 360° VIRTUAL REALITY (VR) LIVESTREAMING

Name of team members: Kuik Swee Boon, Athelyna Swee, Helmut Chan, Nicholas Tan

The recent acceleration of digital and hybrid performances has propelled T.H.E Dance Company to explore high-quality, real-time livestreaming alongside live shows that the Company regularly stages. This has enabled us to reach overseas audiences who previously might not have had such immediate access to our live shows, as well as local audiences who may not have been exposed to our works before.

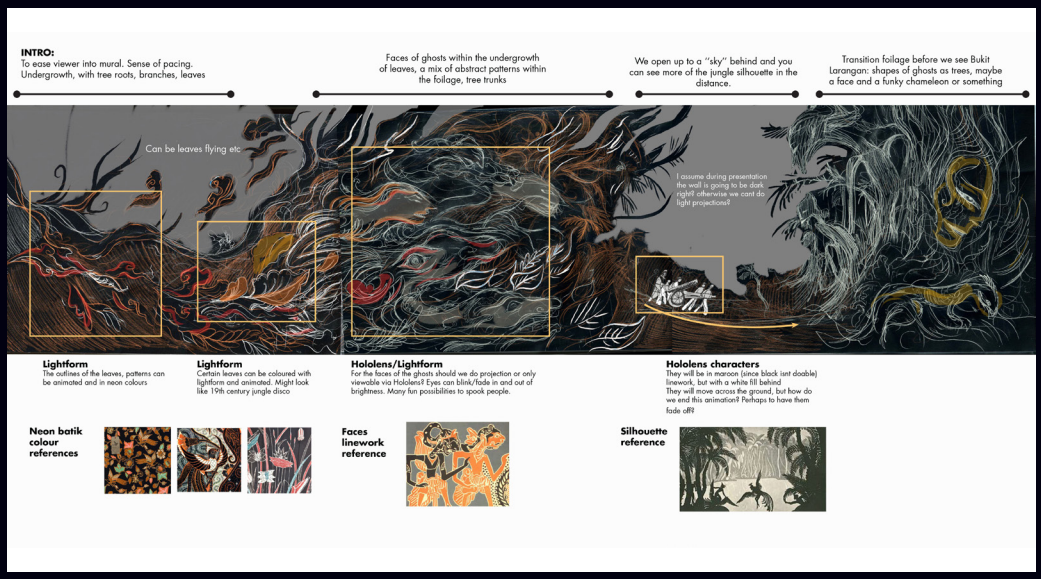
Yet, in such explorations, we are realising that our streams are sometimes lost in the sea of various digital content options available on the same platform. There are also inherent limitations to such livestreams — the audiences are often limited by what our cameras capture, and compelled to watch the angles and perspectives that we offer, without having the freedom to turn their gaze onto what is not captured on screen for them at the moment.

Together with our immersive technology partner Hiverlab, we are experimenting with the possibility of real-time 360° livestreaming, viewed in virtual reality, offering an in-theatre experience of an immersive dance performance without having to step out of the house. Could this be the next best thing to physically attending a live show?

PROJECT TITLE:

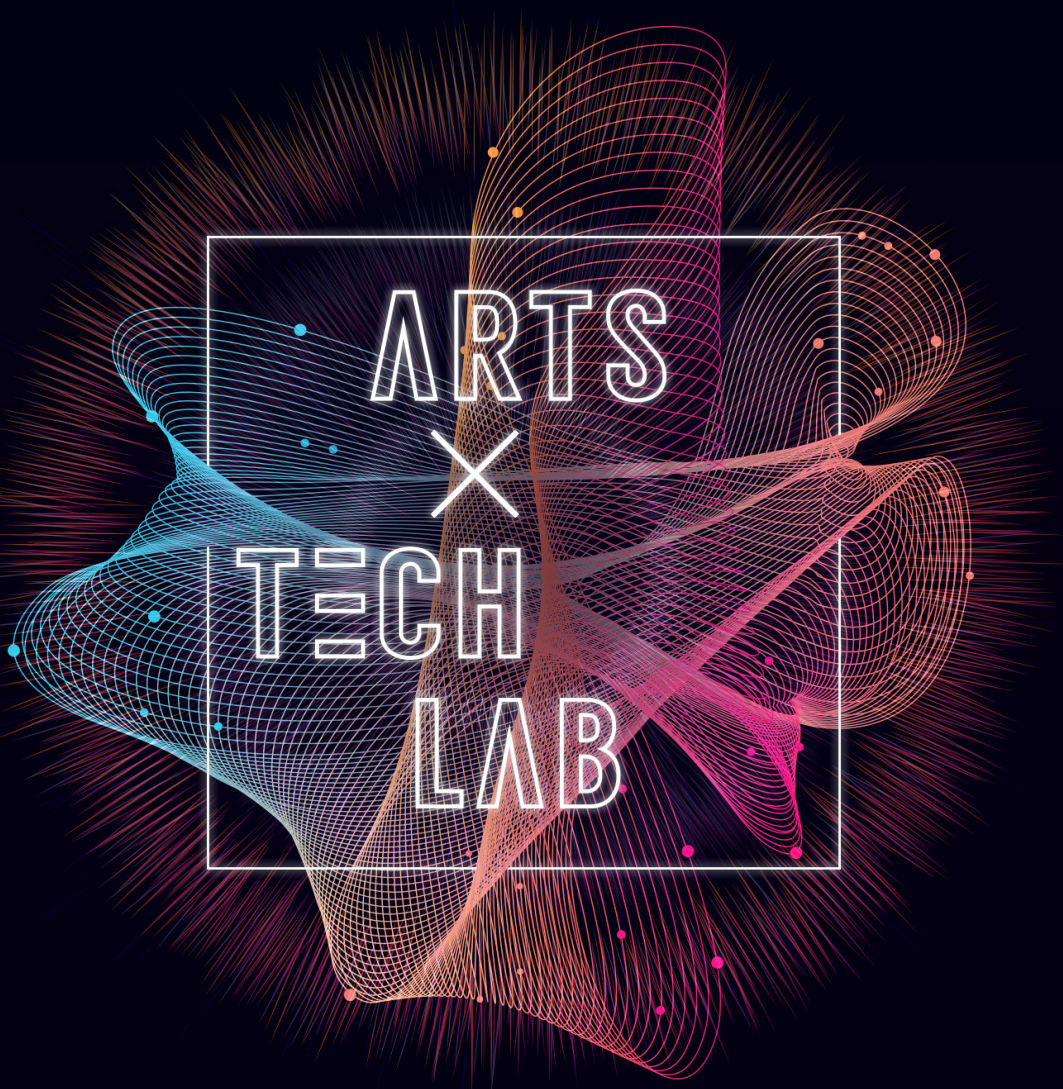
THE COLONEL AND THE HANTU

Name of team members: Christine Chong, Amirah Kamis, Vaibhav Sidapara, Evelyn Ang, Ng Xiao Yan, Ng Yi-Sheng, Guo Ningru, HelloHolo (Chen Kai Yi), d&b audiotechnik Asia Pacific (Royston Tan)



What might a digital experience of an illustrated story look like, using immersive technologies? To explore this question, we are prototyping an interactive installation that uses Microsoft HoloLens 2, projection mapping, and immersive audio to present scenes from Singapore's history in a panoramic format.

By considering how extended reality technology can be used to present multiple narratives against a single backdrop, we aim to devise new ways of storytelling that help cultural institutions make better use of unusual, underused spaces (e.g. corridors, stairwells, areas with curved or slanted walls) and transform these into sites for imaginative, reflective encounters.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