



# Hindi sayang ang talino mo

## How the arts and humanities can advance science outcomes

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**“Gusto kong maging music composer.”**

**“Huwag. Sayang talino mo.”**

**Importante ang sining.  
But you probably already knew that.**

[https://sites.google.com/  
upou.edu.ph/arts-1/](https://sites.google.com/upou.edu.ph/arts-1/)



## ARTS 1: Critical Perspectives in the Arts

Overview and  
Introduction

Module 1: An  
Introduction to Art

Module 2: Art as Product  
of Imagination and  
Human Experience

Module 3: Art as  
Construct

Module 4: Art Forms and  
Styles

Module 5: Materials and




Welcome to the UP Open University's Course Package. This package is designed to enhance your aesthetic awareness, artistic literacy and reflexive thinking about art in various contexts; and foreground the particular

### **The course Package Development Team**

This Course Package is meant to be used in conjunction with the other materials in the Course Package. The materials in the Course Package were developed by a team of faculty from across the UP Open University and are available for download. Please do not post the reading material online or in social media only for students of ARTS 1.

### **Module Supplements**

 Each Module also comes with supplementary discussion materials that you can use to discuss or tutor this course.

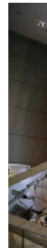
**Art x Science**  
**Art x Space**  
**Art x Futures Literacy**

# Space Ecologies Art and Design

[www.seads.network](http://www.seads.network)

MENU

SPACE ECOLOGIES ART AND DESIGN



SEADS (Space Ecologies Art and Design) is a transdisciplinary and cross-cultural collective of artists, scientists, engineers and activists. Its members come from all corners of the world, from places such as the Philippines, Malaysia, Kosovo, Belgium and the US. SEADS is actively engaged in deconstructing dominant paradigms about the future and develops alternative models through a combination of critical inquiry and hands-on experimentation.



[more...](#)

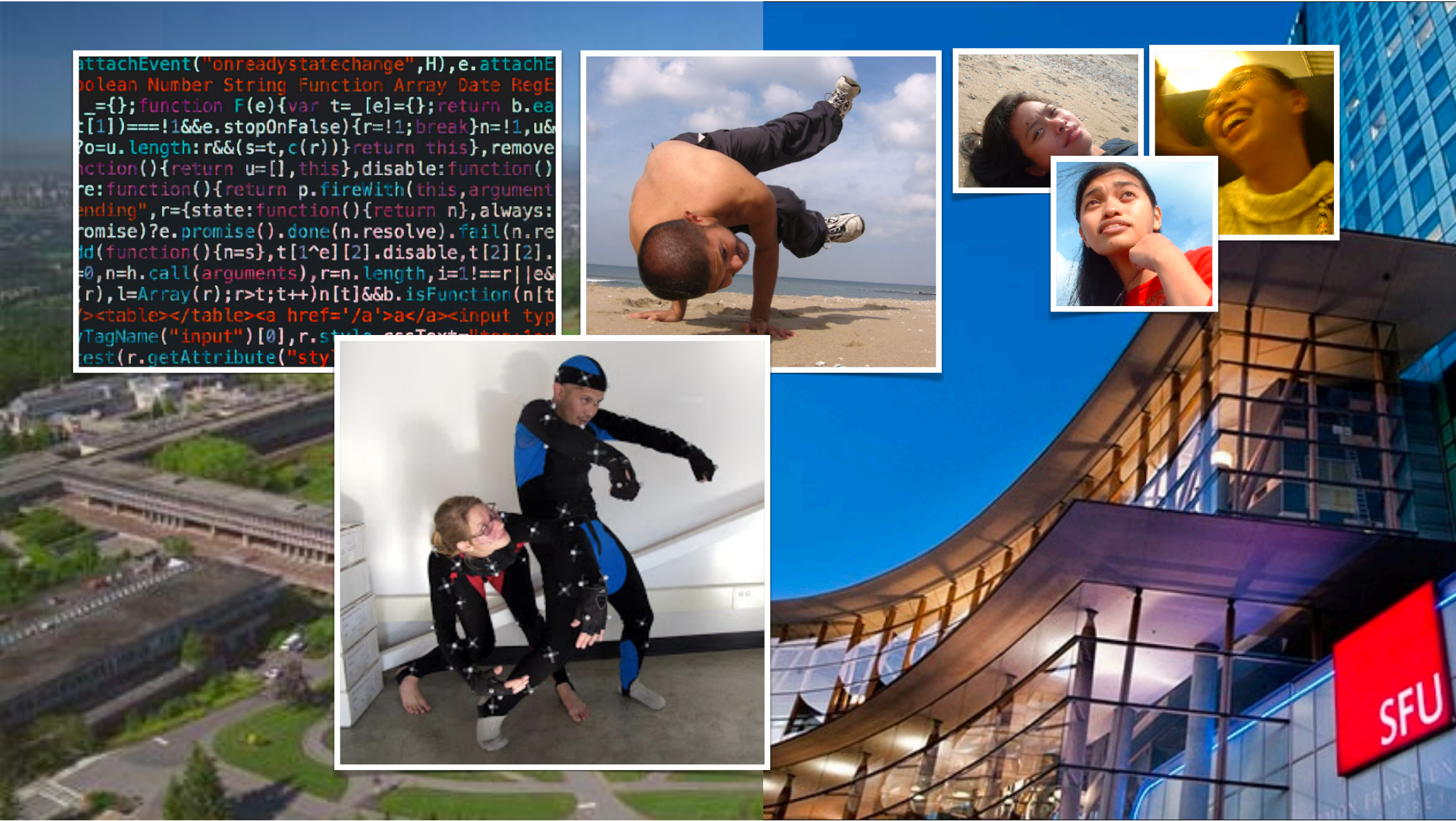
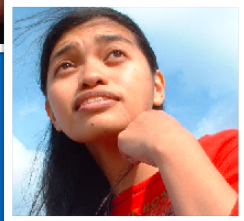


**Art x Science**

**Art x Space**

**Art x Futures Literacy**

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# Feldenkrais Method: Becoming curious about the self



Rywerant, Y. (2003). *The Feldenkrais method: teaching by handling*. North Bergen, NJ: Basic Health Publications, in association with the K.S. Giniger Co., New York, N.Y

Feldenkrais, M. (1972). *Awareness through movement; health exercises for personal growth* (1st ed.). New York: Harper & Row.



*“a short, non-intrusive sensorimotor intervention (based on the Feldenkrais Method) can have short-term effects on spontaneous cortical activity in functionally related brain regions”*

Verrel, J., Almagor, E., Schumann, F., Lindenberger, U., & Kühn, S. (2015). Changes in neural resting state activity in primary and higher-order motor areas induced by a short sensorimotor intervention based on the Feldenkrais method. *Frontiers in Human Neuroscience*, 9. <http://dx.doi.org/10.3389/fnhum.2015.00232>



Dean, S. E. (2014). Amerta Movement & Somatic Costume: Sourcing the Ecological Image. In K. Bloom, M. Galanter, & S. Reeve (Eds.), *Embodied Lives: Reflections on the Influence of Suprpto Suryodarmo and Amerta Movement*.

# Pluridisciplinary Research in Art + Humanities + Science + Technology



COGNOVO [HOME](#) [ABOUT](#) [PROJECTS](#) [PEOPLE](#) [NEWS](#) [EVENTS](#) [CONTACT](#)



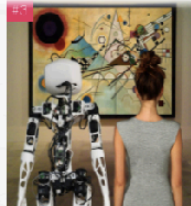
**#1**  
**VALUE JUDGMENTS AND CREATIVE THINKING**

Investigate the role of value based decision making in creative cognition. [\(more\)](#)



**#2**  
**CREATIVITY IN DECEPTIVE COMMUNICATION**

Compare the roles of creativity and visual imagery in honest and deceptive communication, using behavioural and cognitive neuroscience methods and paradigms. [\(more\)](#)



**#3**  
**MODELLING CREATIVE DECISION MAKING**

Investigate aesthetic pleasantness in the visual domain, in an inter-disciplinary manner. [\(more\)](#)



**#7**  
**SHARED CREATIVITY IN DANCE**

Exploring the roles of flow experience and metacognitive strategies: imagery and sense awareness in group creativity in dance improvisation. [\(more\)](#)



**#8**  
**BODYSHAPING THE MIND**

Designing technologies and aesthetic experiences to support embodied cognition. [\(more\)](#)



**#9**  
**DESIGNING PLAYFUL SYSTEMS IN MIXED REALITY**

Investigate the nature of play in a practice-based manner by designing and developing playful systems in mixed reality. [\(more\)](#)



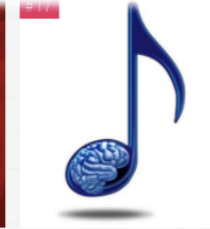
**#10**  
**PREDICTING CREATIVITY FROM SPATIAL ABILITY & PERSONALITY**

Investigate the neurobiological basis for creativity, exploring how biological tendencies or temperament may shape the creative personality. [\(more\)](#)



**#11**  
**UNCONSCIOUS CREATIVITY: THE EUREKA MOMENT**

Investigate the 'Eureka' moment, using experimental observations of unconscious problem solving in architectural design. [\(more\)](#)



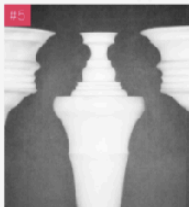
**#12**  
**SCHEMATA AND THEIR APPLICATIONS**

Build a neural system that learns a conceptual hierarchy of (sound)-objects, autonomously searches the underlying conceptual space, and presents the retrieved associative concept-sequence audio-visually. [\(more\)](#)



**#4**  
**NEURALLY INSPIRED ALGORITHMS OF HUMAN COGNITION AND PROBLEM SOLVING**

Explore the neurophysiological basis of generative creative processes, using realistic neural models of cortical function and



**#5**  
**INDIVIDUAL DIFFERENCES IN VISUAL AND AUDITORY BISTABILITY**

Investigate the relationships between switching rates in multistable perception, executive functions, creativity and personality in adults and children, and determine the



**#6**  
**CREATIVITY THROUGH SOCIAL INTERACTION**

Investigate how creative products emerge through interactions in collaborative teams, and how inter individual and social abilities influence social creativity in adults and



**#10**  
**EARLY CINEMA AND COGNITIVE CREATIVITY**

Investigate the cognitive impact of analogue and digital cinematic film projection technologies. [\(more\)](#)



**#11**  
**DEVELOPING CREATIVITY IN COGNITIVE ROBOTS**

I aim to build robots capable of insight using Hierarchical Reinforcement Learning. [\(more\)](#)



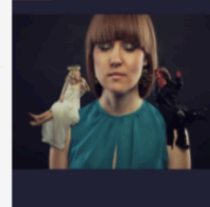
**#12**  
**SIGNS OF ALARM FATIGUE**

Investigates the cognitive-behavioural correlates of the subjective experience of 'alarm fatigue'. [\(more\)](#)



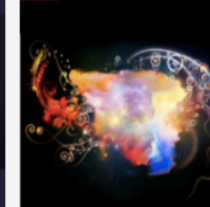
**#13**  
**THE ROLE OF COUNTERFACTUAL THINKING IN DECEPTION**

Investigate how people use alternatives to reality in order to deceive whilst also examining the mechanisms that underlie this



**#19**  
**MORAL COGNITION: AN INTERDISCIPLINARY INVESTIGATION OF JUDGEMENT VERSUS ACTION**

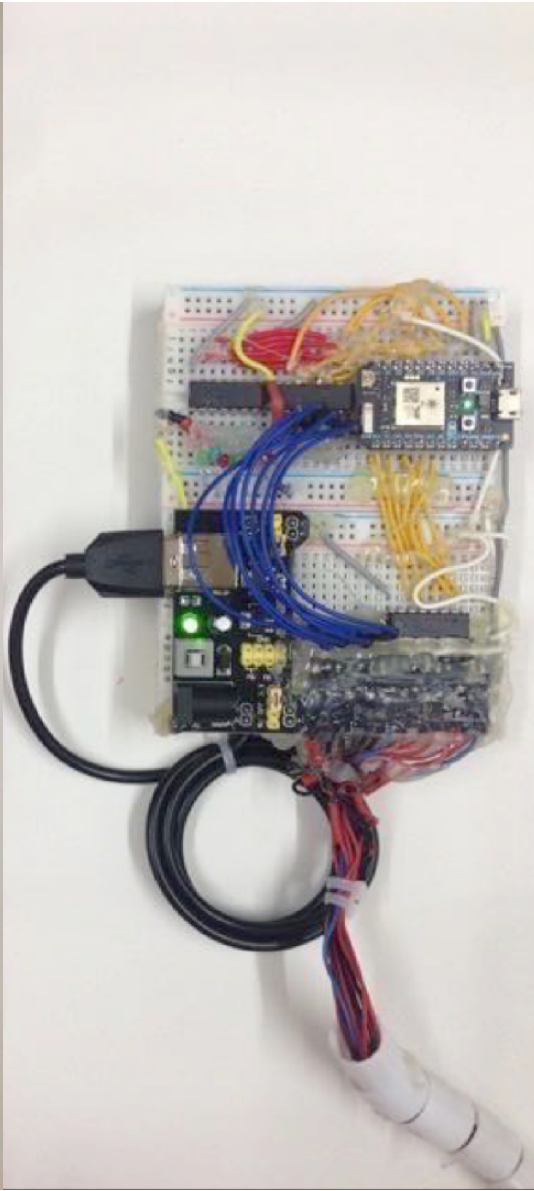
Investigating the role of personality traits and arousal factors on moral decision making and the moral action and judgement disparity.



**#20**  
**ATTENTION, ASSOCIATIVE LEARNING AND CREATIVITY**

Exploring learning about non-informative cues and how this relates to measures of creative thinking. [\(more\)](#)





# Science By Way of Art

Exploring collaborations between the arts and the sciences in the Philippines

#sciart #art-science #interdisciplinary #transdisciplinary #pluridisciplinary

Do any of the following statements ring true for you?

I am an artist in the Philippines who

collaborates / has collaborated with science and technology researchers and practitioners; **or**

incorporates scientific and technological research into my artistic / creative work; **or**

is involved in other kinds of art-science collaborative projects.

I am a scientist in the Philippines who

collaborates / has collaborated with artists when conducting research projects; **or**

uses scientific methodologies for research in or practice involving the arts and humanities; **or**

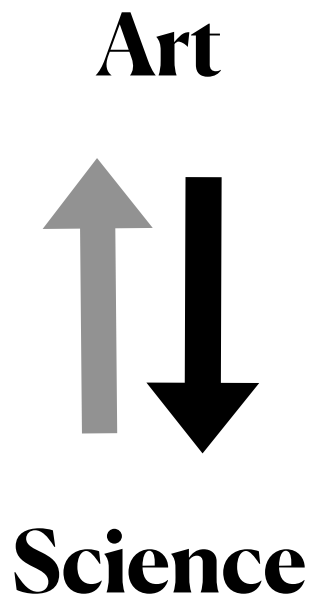
is involved in other kinds of science-art collaborative projects.

My background is in the arts and humanities...

... but my work in the Philippines has impact on scientific knowledge or practice.

If yes, we would love to learn more about your work.





**Broadening discussion on creative economies and cultural industries**

**Science By Way of Art** Exploring the intersection of arts and the sciences  
#sciart #art-science #interdisciplinary

Do any of the following statements ring true for you?

<p>I am an artist in the Philippines who</p> <p>collaborates / has collaborated with science and technology researchers and practitioners; <b>or</b></p> <p>incorporates scientific and technological research into my artistic / creative work; <b>or</b></p> <p>is involved in other kinds of art-science collaborative projects.</p>	<p>I am a scientist in the Philippines who</p> <p>collaborates / has collaborated with artists when conducting research projects; <b>or</b></p> <p>uses scientific methodologies for research in or practice involving the arts and humanities; <b>or</b></p> <p>is involved in other kinds of science-art collaborative projects.</p>
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If yes, we would love to [learn more about you](#)

# Open Call

~87 unique responses

- Archaeologist/explorer
- Philosopher of science
- New media artist
- Chemists (who work in cultural heritage)
- Designer
- Cultural workers
- Poets
- Science fiction writer
- Environmental scientists
- Neuroeconomics researcher
- etc.



Science By Way of Art

Exploring the intersection of science and the arts and the humanities  
#sciart #art-science #interdisciplinary

Do any of the following statements ring true for you?

I am an artist in the Philippines who	I am a scientist in the Philippines who
collaborates / has collaborated with science and technology researchers and practitioners; <b>or</b>	collaborates / has collaborated with artists when conducting research projects; <b>or</b>
incorporates scientific and technological research into my artistic / creative work; <b>or</b>	uses scientific methodologies for research in or practice involving the arts and humanities; <b>or</b>
is involved in other kinds of art-science collaborative projects.	is involved in other kinds of science-art collaborative projects.

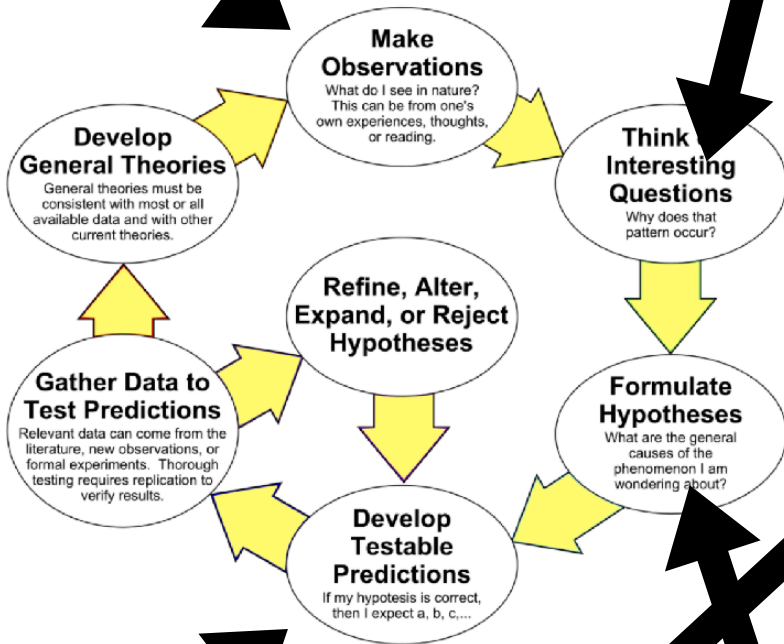
If yes, we would love to [learn more about you](#)

# What we've found so far

- Scientific establishment sees value in engaging the arts and humanities but usually only in very limited parts of the process. Engagement is usually peripheral, but certainly could be expanded.
- **Many different kinds of engagements but nearly all have a strong political or advocacy bent (decolonizing knowledge, policy, public awareness), which was unexpected.**
- Science communication was well-known but the idea of science public engagement not so much.
- Unusually diversity of individual interests
- **Feeling like they had to choose either the arts or the sciences, or forced by family in one direction or another.**
- Fundamental traits? Cognitive flexibility and openness, divergent and convergent thinking, etc.
- Shifting away from the creative outputs and outcomes to nurturing creative traits, behaviors, processes
- Many of the most interesting outcomes happen as a result of serendipitous comings-together and accidental inquiry, and there is a need for platforms, spaces, individuals that can facilitate this.
- Better measurement of long-term impacts of interdisciplinarity.
- The importance of building deep disciplinary expertise and that interdisciplinarity is not always required
- **Science fiction as a gateway or inspirational/aspirational enabler to early interest in sciart (cf. astronauts). Getting younger people to dream big.**
- Queerness and queering the process of scientific inquiry

# Can the arts and humanities make science better?

The Scientific Method as an Ongoing Process

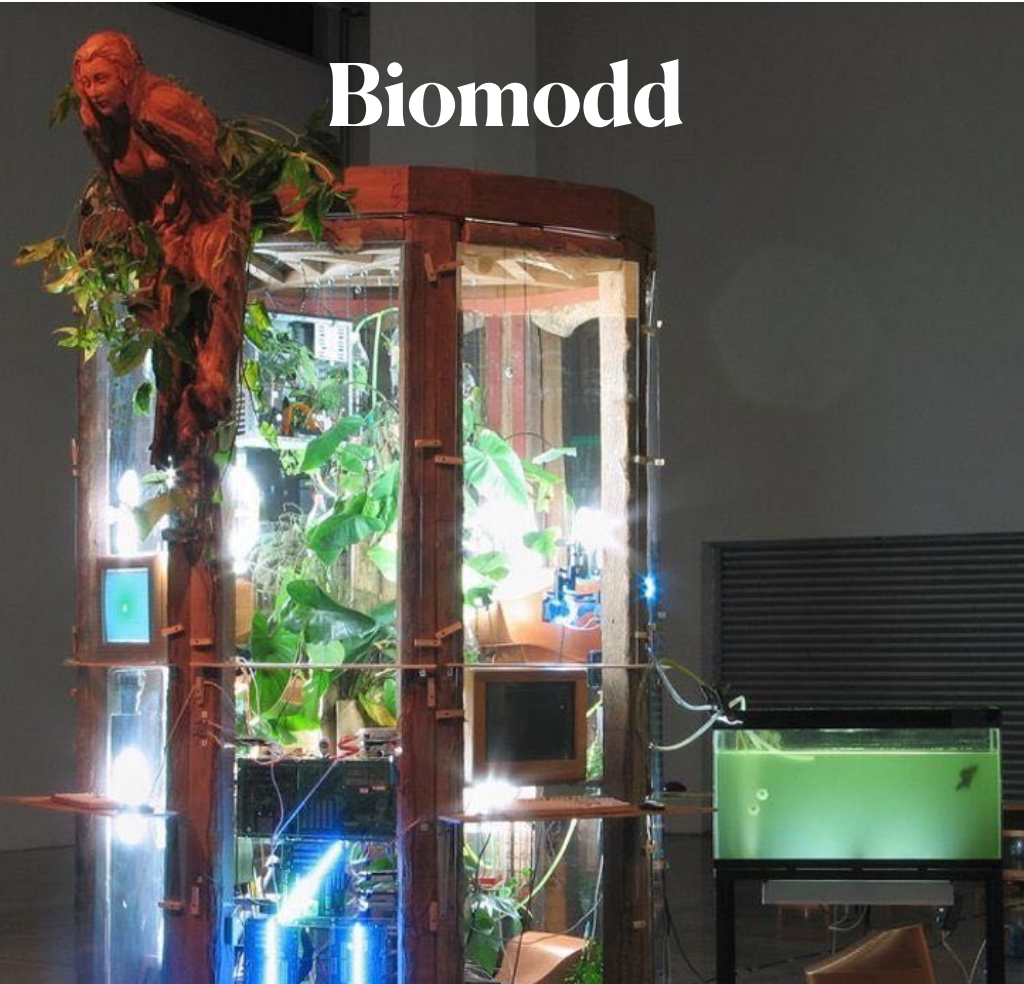


*Art x Science*

**Art x Space**

*Art x Futures Literacy*

# Biomodd



Maranan, D. S., & Vermeulen, A. (2015). When Ideas Migrate: A Postcolonial Perspective on Biomodd [LBA2]. Proceedings of the 21st International Symposium on Electronic Art, Session 21. [http://archives.isea-web.org/?page\\_id=95](http://archives.isea-web.org/?page_id=95)

Global series of art installations in which computer technology and ecology converge. Computer networks built from upcycled computer components are provided with living internal ecosystems. In a symbiotic exchange, plants and algae live alongside electronics and use the latter's waste heat to thrive. Sensors and robotics provide additional interaction possibilities with the organisms



# Seeker: DIY Starship

## resources



Studio Time – Future Thinking in Art and Design: Co-Creating Diversified Futures



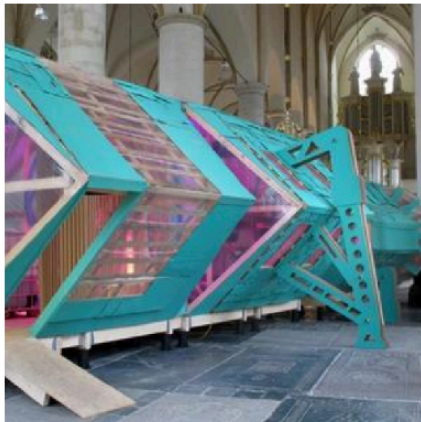
The starships of the future won't look anything like Star Trek's Enterprise



TED Talk about Seeker and HI-SEAS

Seeker is a worldwide series of co-created starship sculptures that evolve over time. In this community art project participants are invited to fundamentally rethink the future of human habitation and survival. Participants build self-sustainable systems simulating interstellar exploration using the methodology of co-creation. This is achieved by radically interconnecting technology, ecology and people, while at the same time tapping into local traditions

Nasser, M., Esteves, A. M., Vermeulen, A. C. J., Maranan, D. S., Peeters, A., & Steyaert, P. (2021, October). Diversifying the concept of analogue missions to explore and evaluate new concepts for future space missions. 72nd International Astronautical Congress, Dubai. <https://seads.network/hyperproject/seeker>



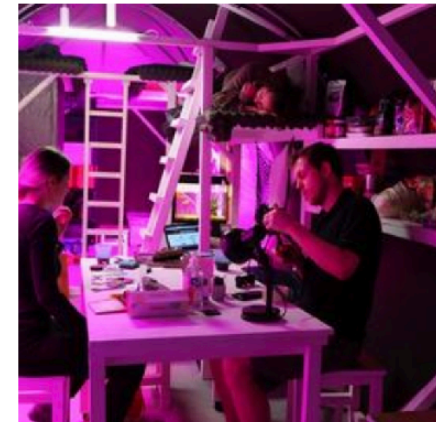
SEEKER [DV<sup>1</sup>]



SEEKER [HS<sup>2</sup>]



SEEKER [EH<sup>3</sup>]



SEEKER [LJ<sup>4</sup>]



# Clinical Trials for Interplanetary Missions



Speculative design + imaginative role-playing for evolving scientific processes in preparation for the deep future.

Nasser, M., Knight, J., Haines, A., Maranan, D., Eachempati, P., & Bernard-Cooper, J. (2021, October). Virtual futuristic analogue missions to drive methodological innovation for clinical research for space mission and earth. 72nd International Astronautical Congress, Dubai. <https://monanasser.wordpress.com/art-portfolio/clinical-trials-in-future-space-missions/>



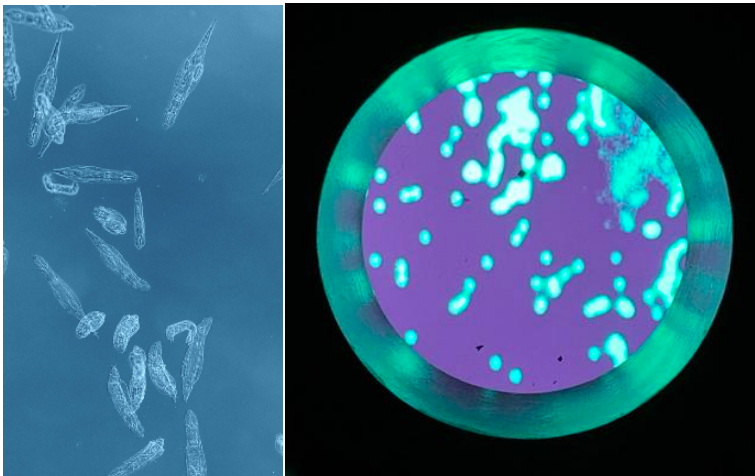
# Engines of Eternity: ISS



Ongoing series of interactive installations focusing on a remarkable microscopic aquatic animal — Rotifera— and how it can provoke audiences to reflect on themes of cultural diversity and immortality. In December 2019, SEADS sent a visual artwork together with a rotifer experiment to the International Space Station via a SpaceX rocketship, as part of a collaboration w/ the lab of Prof. Karine Van Doninck at the University of Namur.



# Engines of Eternity: Galing

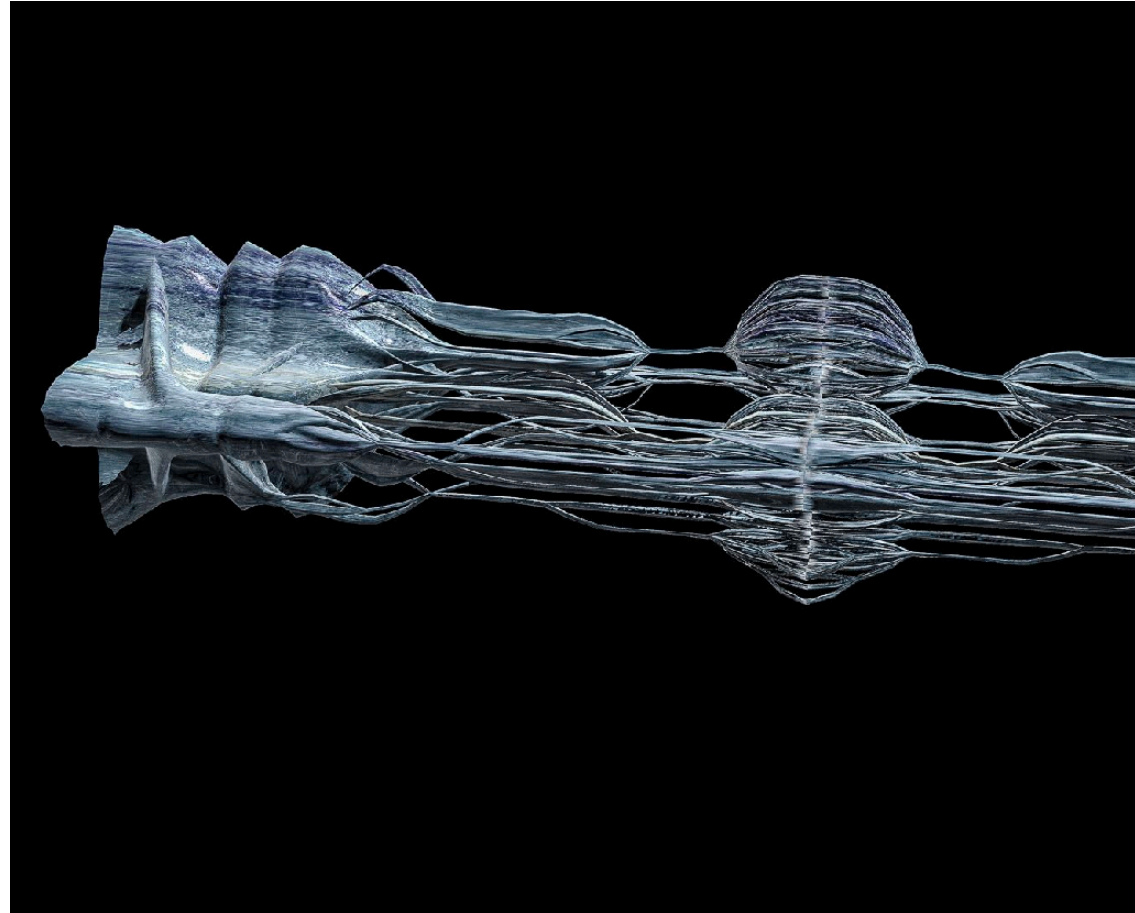
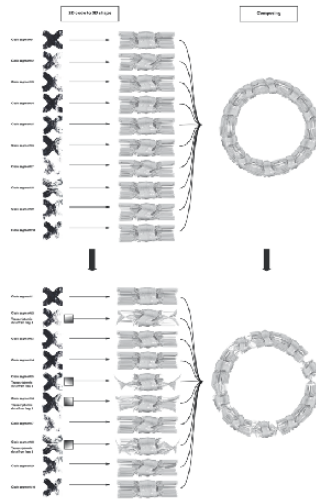
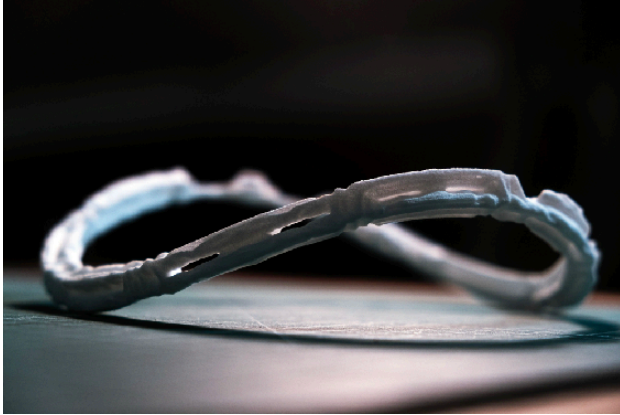


“Galing” connotes both recovery and improved abilities, which are essentially what the rotifer does, simultaneously, as it regenerates. In Galing, visualizations of the Rotifera react to external audio input and to each other. They move in unique patterns, disintegrate, and reintegrate uniquely depending on the kind of sonic input they receive from visitors of the installation and from the environment.

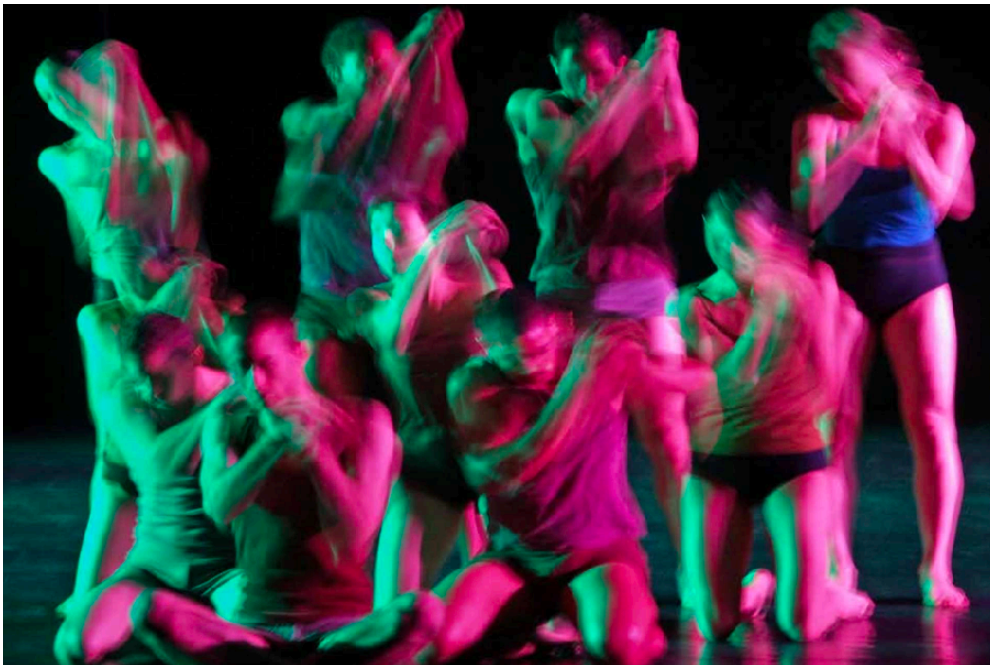
(@Curiocities, Brisbane)



# Engines of Eternity: Data Monument



# Royal Institute of Theatre, Cinema, and Sound Winter School 2022: Climate Change and the new Space Race



*For the Winter School 2022, the interesting tension between the climate crisis on the one hand and the new space race on the other will be explored. As the world groans under the effects of the disruption of our planetary ecosystem, billionaires fly to space to experience weightlessness for mere minutes. Both dystopia and utopia seem present in our lives in theatrical ways. But is this rhetorical opposition between a collapsing Earth and the excesses of technology as simple as it seems? Can we, as humans, even bring the world to harmony at all? And isn't it precisely space exploration that helps us to fundamentally improve our understanding of Earth and take care of our planet? Discussing and reshaping our future requires surrendering to ambiguity and breaking with entrenched paradigms.*



# Philippines Space Agency: Alternative Learning Activities for Multimedia Studies Students @ UPOU

The screenshot displays the official website of the Philippine Space Agency (PhISA). At the top, a dark navigation bar contains the PhISA logo and menu items: GOV.PH, About PhISA, Transparency, Programs, Careers, Space Data Dashboard, Communications, Our Place in Space, Interactives, and Contact Us. Below the navigation bar is a large banner with the text "Welcome to Philippine Space Agency (PhISA)" and a link to read the message of the Director General. The main content area is divided into two columns. The left column features an "EARTH OBSERVING DASHBOARD" with a sidebar for "COUNTRIES" (listing USA, Croatia, France, Germany, Italy, Slovenia, Spain) and a "GLOBAL INDICATORS" section. The dashboard includes a world map and a background image of hands typing on a laptop. The right column contains two news articles: "Women in Space: Reclaiming Space for All" with a photo of a group of women, and "PhISA, JAXA highlight expanded collaboration opportunities in bilateral..." with a photo of officials. Below these is another article snippet titled "Filipino excellence in using space data to solve world challenges" with a similar laptop background image.



*Art x Science*

*Art x Space*

**Art x Futures Literacy**

"Full of revelations for everyone who cares about the legacy they leave."—**The Edge**, U2

# The Good Ancestor

A RADICAL PRESCRIPTION FOR LONG-TERM THINKING

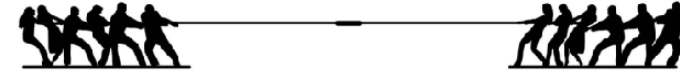
*The most important question we must ask ourselves is, "Are we being good ancestors?"*  
— polio vaccine creator **JONAS SALK**



**Roman Krznaric**  
Author of *Empathy*

"Tempus Nullius": a new kind of colonization

## The tug of war for time



### Six drivers of short-termism

**Tyranny of the Clock**  
the acceleration of time since the Middle Ages



**Digital Distraction**  
the hijacking of attention by technology



**Political Presentism**  
myopic focus on the next election



**Speculative Capitalism**  
volatile boom-bust financial markets



**Networked Uncertainty**  
the rise of global risk and contagion



**Perpetual Progress**  
the pursuit of endless economic growth



### Six ways to think long

**Deep-Time Humility**  
grasp we are an eyeblink in cosmic time



**Legacy Mindset**  
be remembered well by posterity



**Intergenerational Justice**  
consider the seventh generation ahead



**Cathedral Thinking**  
plan projects beyond a human lifetime



**Holistic Forecasting**  
envison multiple pathways for civilisation



**Transcendent Goal**  
strive for one-planet thriving



 From *The Good Ancestor: How to Think Long Term in a Short-Term World* by Roman Krznaric. Graphic design by Nigel Hawtin.

# How can we develop empathy with the future?

Future self  
Future others  
Future world



“...when making important long-term decisions, vivid representations of one’s future self should increase the future-orientation of saving decisions.” (Hershfield, 2011)



# Transfigurations (by Agi Haines)



## Thermal epidermiplasty

Extending the skin on the scalp increases the surface area for faster heat dissipation. With the increase in global warming this child would be able to withstand working in high temperatures due to the higher number of veins near the surface of the skin.



# LigtasPad (by Prodjx Artist Collective)



# Collaboratoire: Early Career Researcher Residency Training

UNIVERSITY OF PLYMOUTH COGNOVO FOUNDATION Curiosity. STATE FOUNDRY ART AND DESIGN



**Collaboratoire**  
2020  
Research Residency on  
Cognitive Innovation for  
Sustainable Development

27 January - 2 February 2020

collaboratoire20.cognovo.org

## The Research Challenges

Research Challenge 1	Research Challenge 2	Research Challenge 3	Research Challenge 4	Research Challenge 5	Research Challenge 6
					
<a href="#">Designing the world for aging</a>	<a href="#">Self-care kit for service and support workers</a>	<a href="#">Environmental Empathy</a>	<a href="#">Fixing Social Media</a>	<a href="#">Transformative Education for All</a>	<a href="#">Reimagining Sustainability</a>



**Art x Science**  
**Art x Space**  
**Art x Futures**  
**Literacy**

Art less as product, more  
as process, ethic, and a  
sensibility.

Curiosity, inquisitiveness,  
openness, and the skills to observe,  
question, explore, and engage with  
the self, others, and the world.

**Imagination is more important than knowledge.  
For knowledge is limited to all we now know and  
understand, while imagination embraces the entire world,  
and all there ever will be to know and understand.**

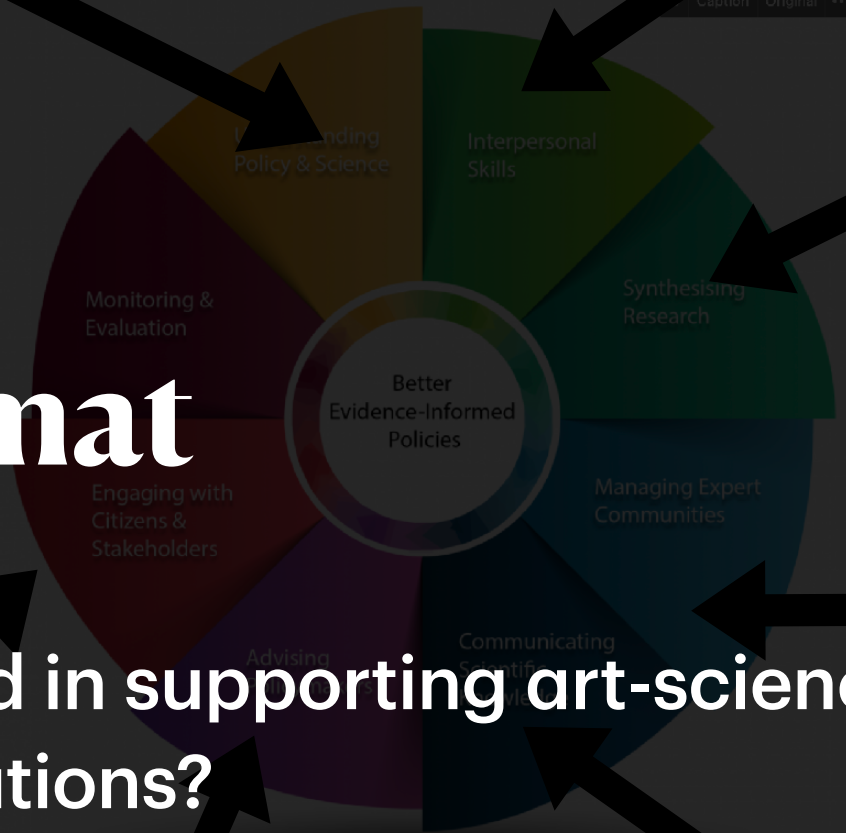
**Albert Einstein**

# Can the arts and humanities make science better?

The Scientific Method as an Ongoing Process



# Salamat



Questions? Are you interested in supporting art-science collaborations?

[diego@seads.network](mailto:diego@seads.network)