

IOTA is a creative agency that supports writing, curatorial research, and cross-disciplinary artworks in new media, the web, visual, interactive and performance art.

We aim to reach beyond the scope and duration of traditional art exhibitions, to create an environment that fosters research opportunities, multi-sector partnerships including technology, biology, and grass roots movements.

Between October 2018 and June 2019 IOTA Institute hosted a series of free public exhibitions, events and installations in Halifax, NS. Whether it's creating microbial art using yeast, or engaging with a full-body exoskeleton, **Bio Art** is a practice that transcends the fields of visual art, media art, and science — applied, social and political. This continuously evolving practice also tests (and sometimes breaks) the boundaries of these fields. .

INTERVIEW WITH STELARC

by Ankur Dnyanmote, 2020

As the first two decades of the 21st century are almost up, we are in a unique position to take stock of our place in history; particularly in order to cultivate a 20/20 vision of what has been our past, and what possibilities await us in a rapidly emerging future. There is no doubt that technology continues to play a dramatically important role in the unfolding of our social, psychological, political, and even existential issues as human beings. The relevance of an interdisciplinary crosstalk between science and art towards underscoring these issues has now become increasingly personal in the form of biology, which continues to be the central domain of human experience. This is especially true in the backdrop of technology. From the rapid advancements in artificial intelligence and robotics to the mind-boggling evolution of genetic engineering, prosthetic technologies, hyper-communication between mind-machine networks, and the eventuality of quantum computing; we in the 21st century are indeed beginning to witness an exponential rise in complexity. In this context, the unusual, futuristic work of artists like Stelarc, provides a much-needed impetus for us as a society to appreciate the dizzying scale of this sea change.

1 ANKUR DNYANMOTE: One of the key messages of your work is that the 'human body is obsolete'. In a way, this is paradoxical, because as an artist you are using your body to create your body of work. So what do you really mean when you say that the human body is obsolete? And how do you view your own body in the context of what this means?

STELARC: In the early sensory deprivation performances, the films of the inside of the body and the suspensions, the outcome was not the experience of the prowess of the body, but rather its vulnerability and inadequacy. The assertion that the body is obsolete simply means that this biological body, with this form, these functions and 1400 cc brain cannot compete with the precision, power, speed and calculations of its machines, instruments and computational systems of the technological terrain that it now inhabits.

Marshall McLuhan alludes to the inadequacy of the body when he states that technology is the external organs of the body. We have evolved with soft internal organs. Now we need to engineer additional sensory and cognitive organs to better operate, interact and comprehend the world. In fact the body has always been an inadequate body, a prosthetically augmented body. In fact one can argue that the most problematic fact about the human body is not its inevitable death but rather its birth. Being born the way it is!

Asserting that the body is obsolete is not about doing without a body at all. It is not about a Cartesian

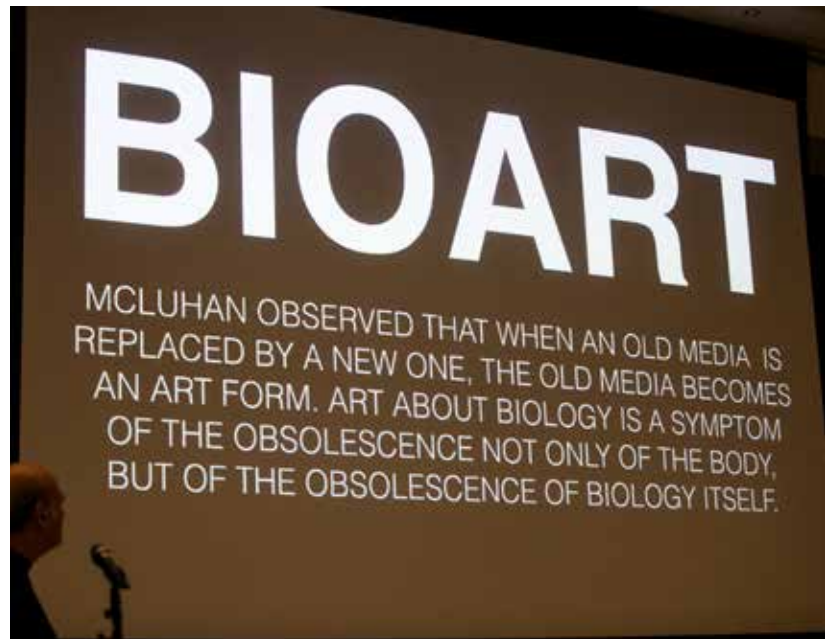
splitting of mind and body or that somehow we can function merely as minds without bodies, that intelligence can be disembodied. We now navigate between the nano-scale and virtual non-places where we have to manage being immersed in circulating data streams of abstract information. There is no longer any ontological difference between the internal and external, with a body that is distributed virtually and a body that is located nowhere. There is no longer any ontological distinction between the body as a subject and the body as an object. There is now a necessity to explore and experiment with Alternate Anatomical Architectures. What it means to be human is perhaps not to remain human at all.

2 AD: Which philosophers have strongly influenced your worldview and its relationship with your artwork? Why?

S: In addition to philosophers, you would also have to list a number of media theorists such as Paul Virilio ("Speed and Politics"), Jean Baudrillard ("Simulations"), Arthur and Marilouise Kroker ("Body Invaders"), Joanna Zylińska ("The Cyborg Experiments") to name a few. Well, I have not methodically studied philosophy and I cannot do justice to the subtleties of philosophical thought or to provide informed reading of philosophers. In my early twenties, I was fascinated by Marshall McLuhan's historical development and social impact of technology ("The Gutenberg Galaxy") and his provocative statements. And certain ideas from certain philosophers I do find particularly seductive. Firstly, Nietzsche's notion that there is no being behind the doing, that the doer is only a fiction added to the deed - that we ascribe agency in retrospect. And secondly, Wittgenstein's assertion that thinking need not be located inside your head, that thinking occurs with the lips that you speak and with the hands that you write (or type). Both of these ideas allow us to reimagine more appropriate relationships with our increasingly operational, autonomous and artificially intelligent robots. The other two more contemporary philosophers of significance are Bruno Latour, with Actor-Network Theory and Graham Harman with Object Oriented Philosophy. Both theories are flattened ontolo-



gies where the human is not prefaced. ANT emphasizes the relations between actors in a network. Where as OOO is enlightens us about the object itself. Harman's definition of an object as neither something that can be reduced to its component parts nor that it can be evaluated by its relations or effects. This definition of an object is much more interesting and enigmatic. I've always spoken of the body as an object (not as an object of desire but rather an object that should be redesigned) and have been criticised for being reductive. And to add that Timothy Morten's "hyper-object" is not only relevant ecologically but also relevant in the realm of digital objects and virtual spaces...



3 AD: Technology continues to play an increasingly involved role in the evolution of art; it certainly plays a key role in your own work. How do you envision this trend will unfold in the near and/or distant future?

s: New technologies, with the unexpected images and information that they generate, will always be of interest to artists. Technology is both a mirror of the human condition and what generates our most



recent paradigms of the world. But it also conditions and constraints our behaviour and even alters our bodily architecture. Artists hack new technologies and apply them in surprising ways, exposing their possibilities beyond conventional use. Computational and machines systems now generate interesting images, initially but finally unaided by humans. And as AI increasingly becomes an alien intelligence (rather than mimicking human ways of thinking) then the conceptual and visual outputs will become increasingly more surprising and creative to humans. Artists are about generating contestable futures. Possibilities that can be interrogated, possibly appropriated, most likely discarded. Nothing happens of necessity but is always contingent upon complex interactive loops of desires and decisions, modulated by social and cultural moulding – and new technologies.

4 AD: Can you tell us about your team; the people who enable you to realize your artistic visions and bring them to reality?

s: Oh, in all of the projects and performances I have realised, some assistance has been necessary. In the earlier suspension performances several people were needed to insert the hooks and to do the rigging. With the Third Hand performances audio / visual technicians were involved. With the robot performances, engineers and programmers have been required. And of course surgical assistance was essential for the Ear On Arm project. At times some people have assisted more

than once. But usually it is different people for different projects, in different places. And because these projects and performances are primarily conceptually motivated, the artist is not simply using one medium that requires particular skills, and thus only one team of assistants. There has always been an oscillation of concern between the physical body, its machine augmentation and visualisation with digital and virtual systems. So there has never been one team assisting in all of these projects. I can't even afford a studio at present, not to mention having a team assisting ha, ha.

5 AD: Apart from the above, what question about your work would you really like to be asked in an interview? Why?

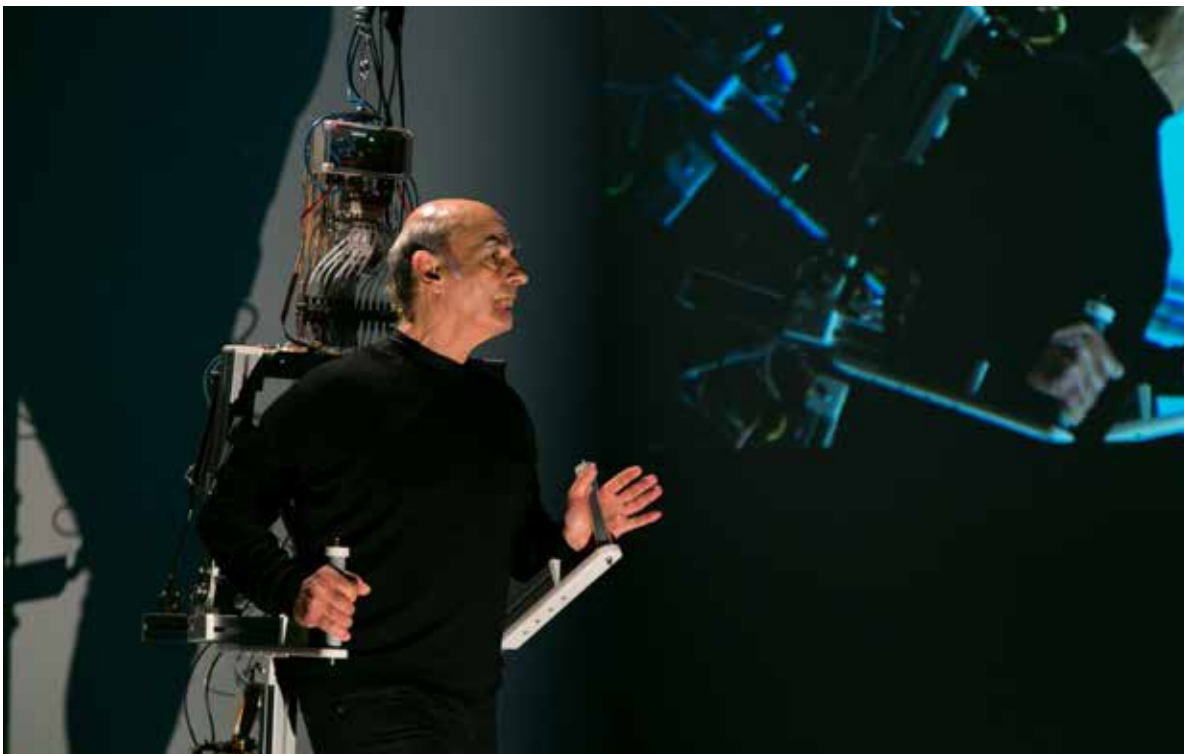
s: Oh, to give an overview of the times we are living in. In an increasingly video, virtual and vicarious world the body attempts to assert its materiality not as a site for the psyche, nor for social inscription but a site to be sculpted. The body not as an object of desire, but an object that requires redesigning. In this age of body hacking, gene mapping, prosthetic augmentation, organ swapping, face transplants, and lab chimeras, what it means to be a body, what it means to be human and what generates aliveness and agency becomes problematic. In the liminal spaces of proliferating Prosthetic Bodies, Partial Life & Artificial Life,

the body has become a floating signifier.

The dead, the near-dead, the yet to be born, the partially living and synthetic life all now share a material and proximal existence, with other living bodies, microbial life, operational machines and viral code. In an age of Mixed Realities, the body performs beyond its skin and beyond the local space that it inhabits. It is extruded into non-places and task envelopes of virtuality stretching its sense of self. The body experiences itself as empty, not an emptiness from any lack, but an emptiness through excess. The body has become an end effector for other bodies and machines elsewhere. The body has become a contemporary chimera of meat, metal and code.

6 AD: What's next?

s: The *Reclining StickMan* is a large-scale robotic and interactive installation over 9m in length, now being custom engineered for the Biennale of Australian Art. The robot has 8 degrees-of-freedom, bending and lifting its arms and legs, tilting its torso and rotating on its axis. Its engineering is unique in that it is actuated by airflow muscles – pneumatic rubber muscles that are antagonistically bundled and algorithmically actuated – its muscles expanding and contracting, exhausting and extending. It is both a challenging engineering and aesthetic project.



A smaller reclining stickman, engineered to the proportions of the artist is the interactive, physical interface. By bending its limbs the visitor can initiate a choreography of the large robot - a kind of electronic voodoo. The choreography of the robot, also inadvertently composes the sounds that are generated. And by rotating the smaller StickMan interface left and right, the visitor "scratches" the pneumatic sounds and solenoid clicks of the actuated robot. The installation also then becomes a sound machine doubling its interactive capabilities. The sound registers and amplifies the movements of the robot.



All images: IOTA Bio Art Series, Chantal Routhier photography, 2019

There is online streaming and online interactivity. Anyone, anywhere, at anytime will be able to access the installation via a 3D model on its website. Clicking on the online 3D model will initiate the choreography of the large Reclining StickMan, seen by the simulation of the movement by the 3D model and also by the streaming from Art Gallery of South Australia in Adelaide. The online interactivity vastly extends audience viewing and participation beyond the AGSA to potentially anyone, everywhere else. Visitor interaction in the AGSA will be prioritized with the interactive software, whilst of necessity, online participation will be automatically queued, with the estimated time of the choreography indicated to the participant.

Although the interactive installation is meant to be the artwork in-itself, durational performances are also planned, with the artist attached to the torso of the large robot, whilst its arms and legs are in motion, visually wrapping around the artist. The artist will also be able to insert additional robot movements with two mounted pneumatic joysticks on the support structure. The reclining figure has been part of art historical imagery. This reclining stick figure, a minimal representation of a body, is now transformed into a monstrous and threatening hybrid of human-machine choreography.

Stelarc is a performance artist who has visually probed and acoustically amplified his body. He has made three films of the inside of his body. Between 1976-1988 he completed 26 body suspension performances with hooks into the skin. He has used medical instruments, prosthetics, robotics, Virtual Reality systems, the Internet and biotechnology to engineer intimate and involuntary interfaces with the body. He explores Alternate Anatomical Architectures with augmented and extended body constructs.

He has performed with a THIRD HAND, an EXTENDED ARM, a VIRTUAL ARM, a STOMACH SCULPTURE and EXOSKELETON, a 6-legged walking robot. His FRACTAL FLESH, PING BODY and PARASITE performances explored involuntary, remote and internet choreography of the body with electrical stimulation of the muscles. His PROSTHETIC HEAD is an embodied conversational agent that speaks to the person who interrogates it. He is surgically constructing an EXTRA EAR on his arm that will be internet enabled, making it a publicly accessible acoustical organ for people in other places. He is presently performing as his avatar from his SECOND LIFE site.

In 1996 Stelarc was made an Honorary Professor of Art and Robotics at Carnegie Mellon University; in 2010, was awarded the Ars Electronica Hybrid Arts Prize; and, in 2015, received the Australia Council's Emerging and Experimental Arts Award

As a scientist, **Ankur Dnyanmote** has received academic training in Toxicology and Pharmacology. His doctoral

research in tissue regeneration was followed by post-doctoral work that focused on studying embryonic organ development, providing him with a rich background in biological sciences. He has worked on intriguing biological phenomena such as branching morphogenesis, tissue repair, homeostasis, cellular transport and molecular signaling in the mammalian kidney. This enabled him to diversify his expertise in areas such as tissue engineering, bioinformatics, and systems biology.