

HOW?

An interactive exhibition in the upper galleries of St James Cavalier aimed towards adults and children. It ran from the 28th September till the 28th October as part of the Science in the City festival. The exhibition brought science and art together with local artists exploring various scientific phenomena. How does the human mind work? How can a fly be compared to a human or be useful towards the future of the human race? How is a child born with a deformity? How does something stretch but get fatter?...

Each artist reflected on scientific research, and had the opportunity to work with Maltese scientists in their chosen area for inspiration and accurate results.

Exhibition Sponsors: St James Cavalier, Nexos Lighting Technology, Malta Arts Fund

HOW TO GET RID OF FRUIT FLIES?

Sarah Maria Scicluna

Scientists consulted: Dr Edward Duca and Dr Ruben Cauchi who studies muscle wasting diseases using the fruit fly

Fruit flies are commonly viewed as pests by the agricultural industry and in households. Scientists view these insects differently, having studied them for over 100 years. They've found out how organs develop, how genes are inherited and learn more about obesity, diabetes and muscle-wasting diseases — these killed Chinese chairman Mao Zedong. At the University of Malta, Dr Ruben Cauchi is studying similar muscle-wasting diseases. Fruit flies share around 70% of human genes that cause disease, allowing scientists to use fruit flies to understand ourselves — an ironic twist.

The fruit flies used for this work were housed in lightbulbs modified to provide them with everything they needed to survive. The flies were flightless mutants, since their genetic code had been altered to stunt their wing growth. The mutation provides irony to its name and renders it unable to survive in the wild.

Photo by Elisa Von Brockdorff

THE TECHIBOTS

Elisa Von Brockdorff

Say hello to the TechIBots! Technology is a welcome element to contemporary living, yet it can often create a society dependent on it. It can transform man into 'programmed' creatures, on which many decisions, procedures and strategies are often based. Systems collapse once technology fails, even momentarily! Agitation and anxiety soar!

Inspired by George Ritzer's *McDonaldization of Society*, the TechIBots are constructed out of pill sheets, utilizing the structured material element as a basis for this rampant creature.



OYE OF LITTLE FAITH (HEART)

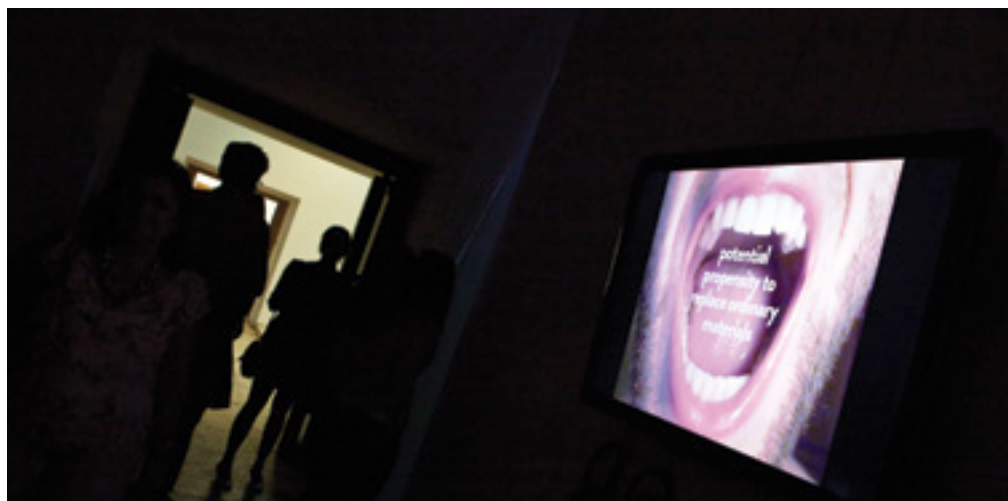
Matthew Farrugia

We all need a heart to live. Your body dies within minutes if it stops. The heart is mostly pure muscle, it is around the size of your fist, and located a little to the left in the middle of the chest. The heart's job is to pump blood around your body to provide oxygen and nutrients.

This responsibility leaves the heart prone to complications. The most common complication is heart failure, which is when it cannot pump enough blood to the rest of the body. Most of the time this is because of a heart attack when blood flow is blocked, which is the most common kind of complication. Other more severe heart diseases include Angina which is when the heart isn't getting enough blood, giving a severe pain in the chest.

-hEx: INVERTED GEOMETRY BY THE RUBBERBODIES COLLECTIVE

see pg. 29

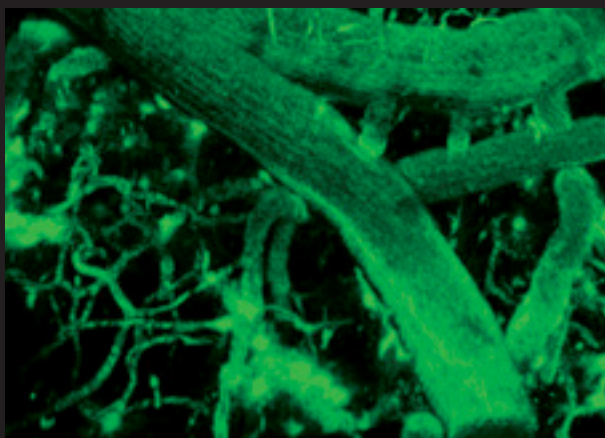


THE HUMAN BRAIN: THE ONLY KNOWN STRUCTURE THAT CAN STUDY ITSELF

Michael Xuereb

Scientists consulted: Dr Mario Valentino and his team who study the mouse brain

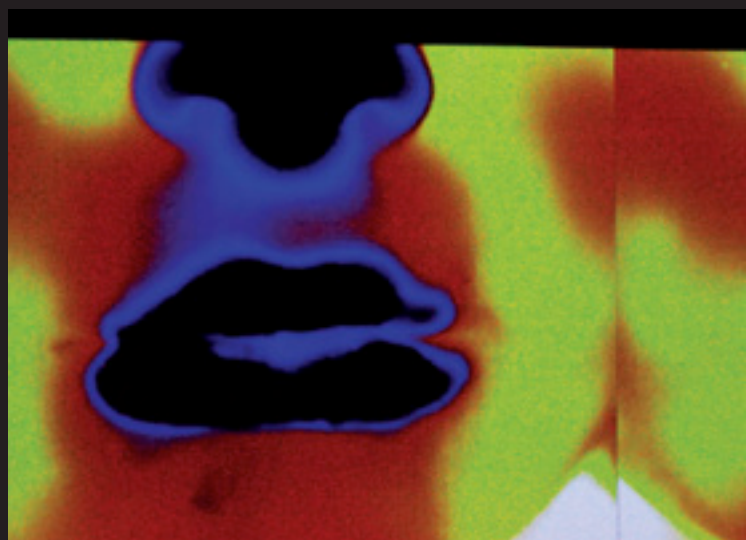
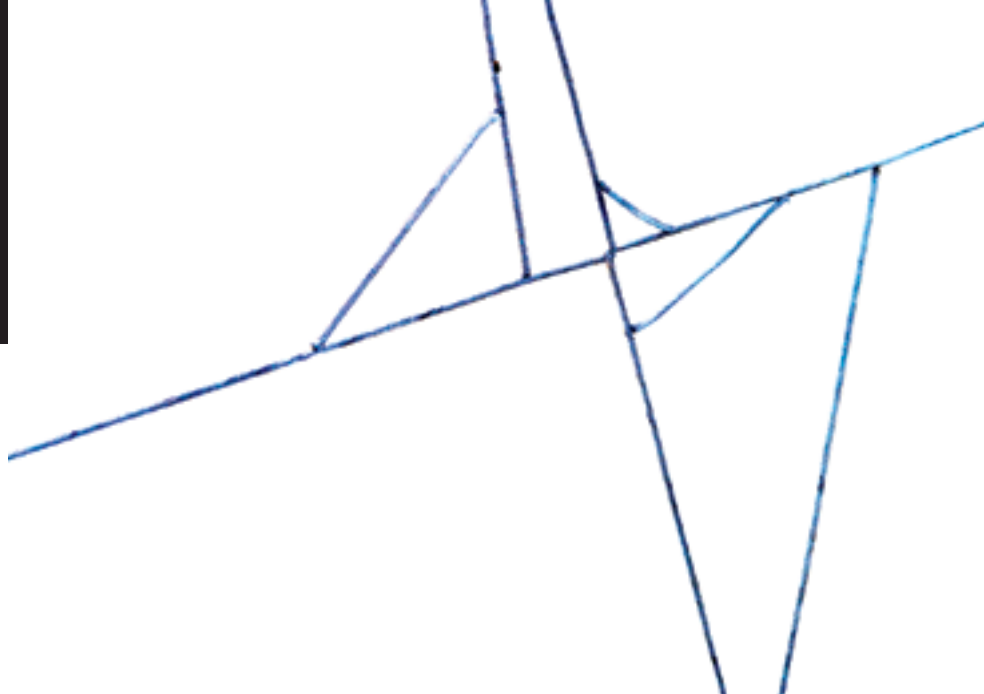
When scientists research, examine, and map the brain, they are using the same organ they are studying. This simple fact is celebrated in Xuereb's installation. He magnifies a single connection point from the trillions of connections in our brain called 'connectomics'. Connectomics is used by scientists to project complex brain images. These connections transfer signals and commands that together compute our thoughts. These can be thoughts about what to wear, who we love, mathematical calculations or even reasoning our emotions.



BRAIN STUDY

Scientists consulted: Video by Dr Mario Valentino and Dr Christian Zammit

Dr Mario Valentino (University of Malta) has carried out extensive studies on mouse brains to find out how brain injury occurs and develops in humans. During this research, Dr Valentino captured striking 3D images of mouse brains, which were then displayed in St James Cavalier. The images are mainly focused on mouse vasculature on the surface of the brain and the close association of cells called astrocytes that maintain the blood-brain barrier, which is essential for the survival of neurons.



4. 1868: THE THEORY OF HEAT

Adrian Abela, actors & performers: Tia Rejlić, Martha Vassallo, and Aidan Corlett

Scientists consulted: Prof. Kenneth Camilleri and his team who research biomedical engineering at the University of Malta.

4.1868 discusses various theories of how life began, such as that by Charles Darwin, using both a visible camera and a thermal imaging camera donated for this exhibition by Prof. Kenneth Camilleri and his team at the University of Malta. Adrian Abela interprets the traditional story of Melqart, the God of the Sea and Underworld, through a scientific eye.

Thermal imaging cameras are used to diagnose disease and study medical problems. They detect radiation in the infrared range of the electromagnetic spectrum (roughly 9,000–14,000 nanometres or 9–14 μm) and produce images of that radiation, called thermograms.

The installation was a 40 minute video.



Photos by Elisa Von Brockdorff

THE CUCKOO'S NEST (BRAIN)

Matthew Farrugia

Scientists consulted: Prof. Giuseppe Di Giovanni and his team, and Dr Neville Vassallo who are studying brain diseases at the University of Malta

The brain is a wonderful organ — what would we be without it?

It is able to absorb information and hold memories and keep it stored for years to come. The brain is divided into various parts, all linked and working together.

The brain is more complicated than the heart, and is prone to going wrong. Addiction, epilepsy, Huntington's, Alzheimer's and Parkinson's disease, are all illnesses the root of which lies in the brain.

MEDICAL SCHOOL: HOW DOES MEDICINE DEFINE THE BODY?

Raphael Vella

Scientists consulted: Textbooks used by medical students at the University of Malta

A series of fifty, small mixed media works were displayed on the walls of a classroom within a room in St James Cavalier, complete with blackboard. The images are photographic transfers on paper, reworked in ink, graphite and additional layers of Chinese paper.

This installation of fifty framed, photographic images transports us from the beginnings of the power of medicine over the infant's body, through the internalisation of medical knowledge via the mechanical components of 'public health' policies and systems, and ending with postmortem analyses that conceptualise murder and suicide in the cold language of science.

How does medicine define the body? How is the body constructed in the image of medical textbooks? And how does the inaccessibility of medical knowledge to ordinary persons affect their understanding of their own bodies?



Photo by Edward Duca



HUMANISED FRUIT FLIES

Liliana Fleri Soler

see pg. 17

GLOWING RABBITS, INVERTED GEOMETRY, AND FEELING NORMAL

Words by **IRA MELKONYAN**

To me, the idea of having art and science in one's life is not surprising. As I am writing this article about my artwork in a science and art festival, I sit working in a research laboratory wearing a white lab coat. My challenge might be how easily society accepts this combination.

In the 2012 edition of *Science in the City* festival, my participation was marked by two events: a digital performance installation *-hE^x: inverting geometry* and a talk at Malta Café Scientifique called *Bioart: Merging borders between art and science*. The starting point for *-hE^x* was the research of Prof. Joseph Grima and his team on auxetic materials. The term refers to particular molecular structures that make a material become fatter when stretched. Normal material, like fabric or rubber band, becomes thinner. So, what does this feature have to do with art? Or how can such a structural and scientific topic become art; it definitely is not arty-colourful! This contradiction is exactly what inspired us to distill the technical side of meta-material research and turn it into a pleasing aesthetic. Beyond beauty, perhaps we also wanted to stimulate individual associations, abstract thoughts, and conclusions.

The artistic team involved two performers, video, and sonic artists. We started from basic keywords and concepts, worked separately, and then joined our independent achievements into one artwork. Rebecca Camilleri and I created the choreography. It was based on the geometrical lines that auxetics have to offer. Video artist Anthony Askew »

-hE^x: INVERTING GEOMETRY

the rubberbodies collective
(Rebecca Camilleri, Anthony
Askew, Ira Melkonyan)

Sound Designer & Composer:
Andre Borges

Scientists consulted: Prof. Joseph
Grima and the Auxetic Materials
group, UoM

Photos by Elisa Von Brockdorff

also created a clinical, sterile environment by working with lines. At the same time, he emphasised the transformation and deconstruction elements of auxetic materials. He created two videos which became part of the installation. The first introduced visitors to the background information on what they were going to see in the installation space. The second was integrated into the main installation and directly affected by the performer's spatial movement. This video showed hexagonal shaped structures being constructed and deconstructed. Through in-built coloured light bulbs, the performers could control how the shapes developed using specially created software. The choreography could literally dictate structural changes.

Sound was created using different household and acoustic equipment. It was looped as the 10-minute long choreography repeated six times. There was no definite beginning or end.

We didn't want to give a digested illustration of auxetic materials. Instead, *-hE* is an aesthetic experience aimed for anyone to appreciate. Along with scientific linearity translated into visual surroundings, the piece was meant to raise questions of a live performer presented as an inanimate object in the context of an art gallery. Routine was evident in the purposefully looped sound and movement, while we touched on the audience's personal associations with outer space, extraterrestrial life, and robotic technologies.

I noticed a striking difference between the audiences over our two performances. The first night was the exhibition opening for a selected range of invited people, the second evening's audience were mainly families with many young children. Our artwork was very conceptual and rather intellectual. However, the installation appealed to the elite architect or curious housewife, elderly University professor or a young boy. Everyone could control the time they spent at the performance; some stayed to observe for only a few minutes but as our video documentation shows several people stayed for the whole hour of looping actions. Many hour-long observers were young children. I am unsure what was going through their minds, what kind of science-fiction cartoons our



movements triggered in their imaginations. It showed how artwork is about energy flows that have to connect to its audience and less about the concept.

I also gave a talk on Bioart at *Malta Café Scientifique*. Bioart is a relatively new term that refers to many different artworks that deal with or use different methods of biotechnology, a science that aims to create useful products by using or modifying living organisms. The talk mainly covered examples of conceptual visual and installation art. Such artworks include bacteria-made paintings, genetically modified human cells, floral and animal tissues, photographs and paintings portraying the invented reality of our bio-technologically modified future or scientifically oriented present. The after-talk discussion was rather heated, picking up on several basic concepts. What is art? What is the idea behind an artwork or its execution? What is ethics? Why does bioart raise scathing ethical debates? And is it legitimate to call genetically modified animals an art piece, for example the glow-in-the-dark rabbit of Eduardo Kac? No doubt, this debate pointed out an existing interest of local people towards the cross-effect of two disciplines. Nevertheless, there is a need to question all of these ultra-modern tendencies and whether they are suitable for a calm, tiny Mediterranean island.

While asking questions and looking for answers are essential human activities, both art and science are ways of channeling these activities through different reference points. In this way, festivals like *Science in the City* are a great opportunity for people like me to feel normal for a change, despite operating within the often-questionable union of Science and Art. ●

For more on bioart: www.bioartira.com and the rubberbodies collective: www.rubber-bodies.com