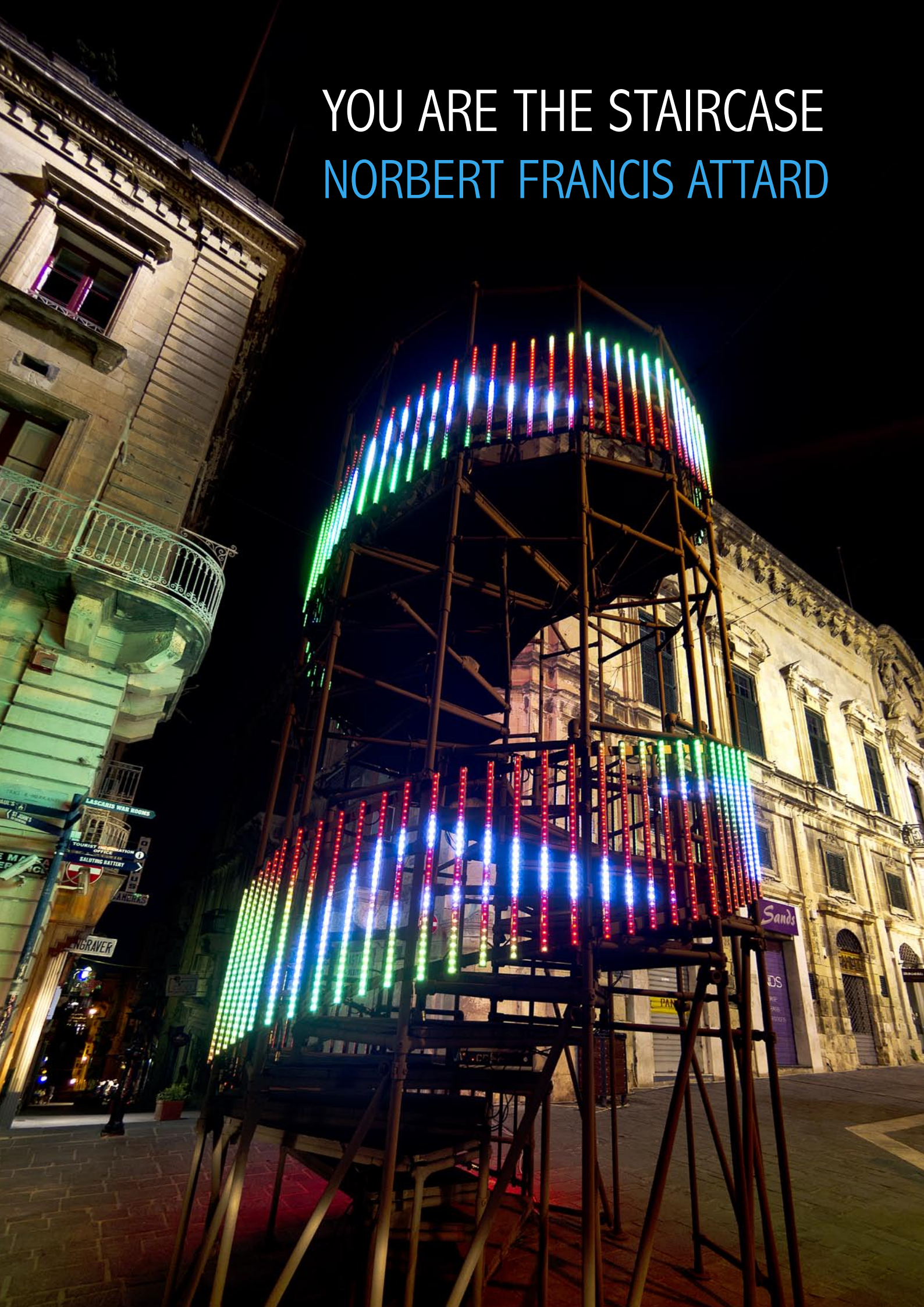
# YOU ARE THE STAIRCASE

## NORBERT FRANCIS ATTARD



# YOU ARE THE STAIRCASE

KEE-KLAMPS CONSTRUCTION SYSTEM, GREY PAINT, COMPUTER CONTROLLED LED 90CM STRIP LIGHTING

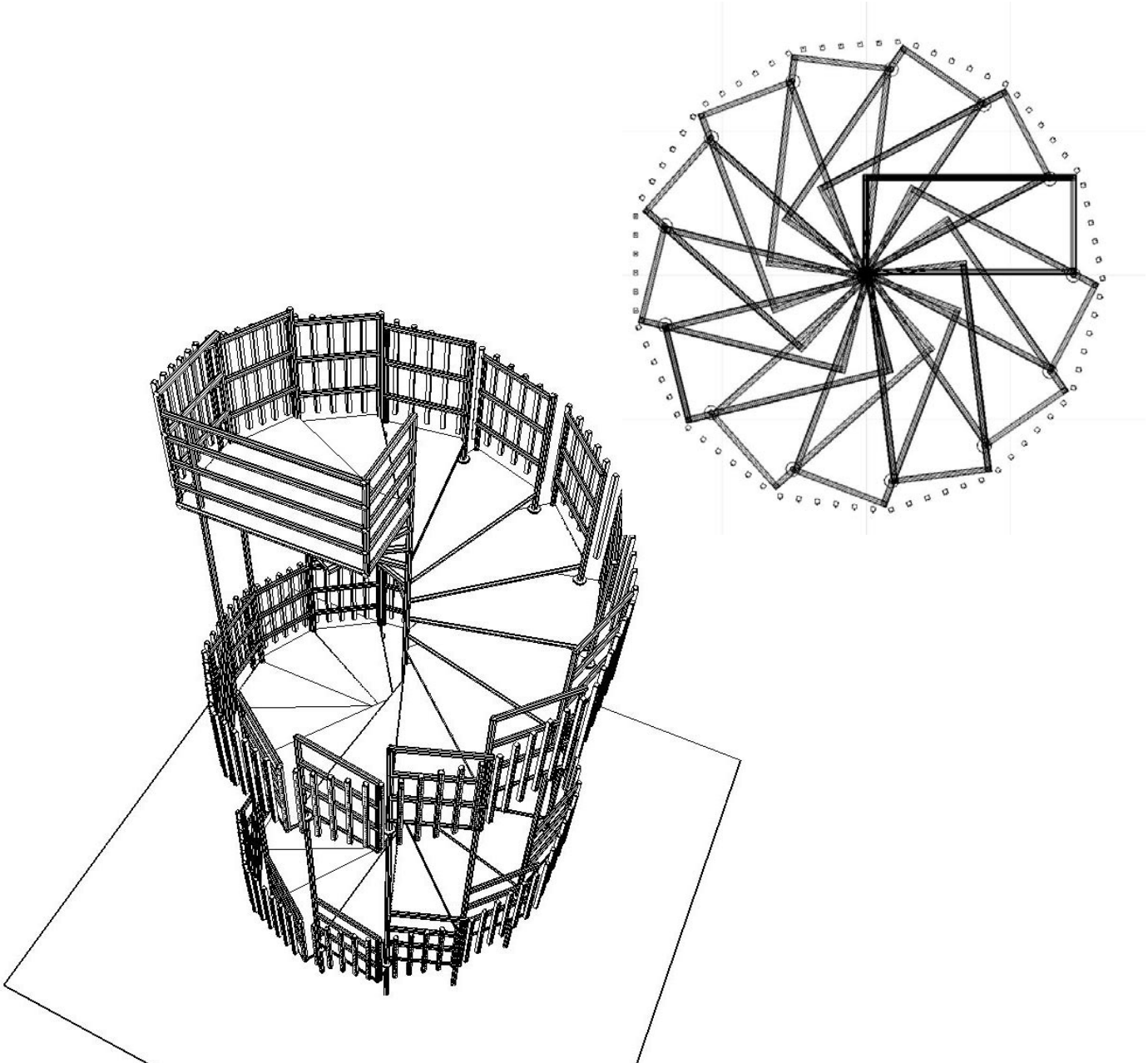
SCIENCE IN THE CITY 2012

CO-ORDINATED BY PROF. ALEX E. FELICE AND MANAGED BY DR. EDWARD DUCA

CURATED BY LILY AGIUS GALLERY

ST. JOHN STREET CORNER WITH MERCHANTS STREET, VALLETTA, MALTA, 2012

The form of a spiral staircase assembled with the Kee-Klamp building system was located within a central intersecting area of Valletta. The railing was encased within a series of vertical LED strip lights, which accentuated its geometrically repetitive upward spiraling form. This spiraling form alluded to the shape of the double helix, an element which brought art and science into one single entity. The viewer was to climb the staircase until arriving at its abrupt termination. From this raised position, the viewer was able to view the urban surroundings and the towns visible beyond Valletta.

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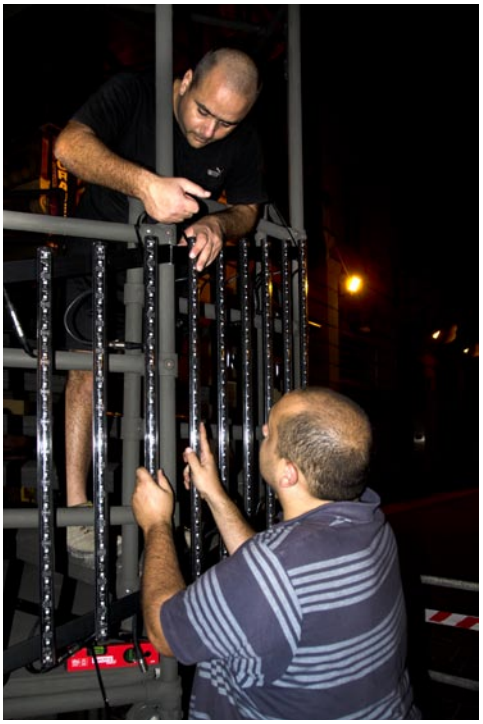

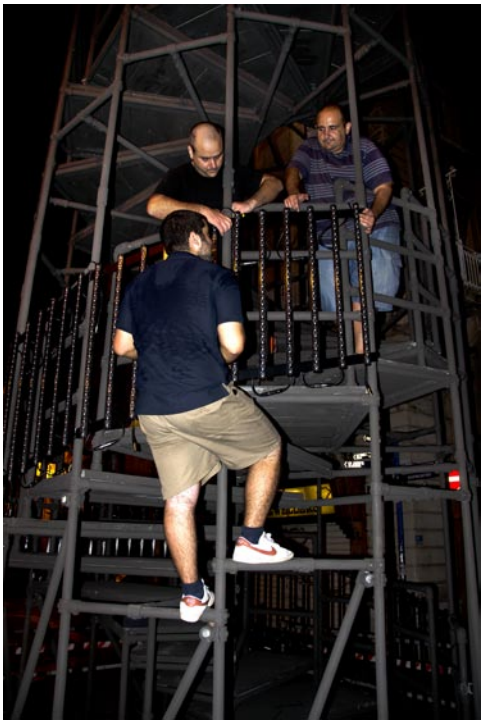

# You Are The Staircase

In 1953 James D. Watson and Francis Crick walked into The Eagle pub in Cambridge and announced that they had ‘discovered the secret of life’. Their bold statement turned out to be one of the most significant findings of the twentieth century. Its historical narrative was documented by Watson in his autobiographical publication ‘The Double Helix’. The term ‘double helix’ refers to the form of the DNA structure. Attard uses the aesthetic of the DNA for this installation set within the centre of Valletta. He intelligently creates an association between the form of the DNA and the upward spiraling movement of a spiral staircase.

The function of the staircase is to transport people from one level to another and, therefore, is a structural link. In the case of the DNA, its function, or rather, its role is to carry genetic sequence information; the code which constitutes our unique individual being. Thus both lead us towards our supposed destination.

Viewers are to interact with the spiral staircase; to climb up it and see where they will eventually end up. Once at the apex, one arrives at a platform which essentially leads nowhere. However, it is a strategic position from where to observe the surroundings of the city. Standing at this point, the viewer is able to see that life exists in everyone and everywhere; we are encompassed by it.

Attard liberates the viewer from objective interpretations. Our DNA makes us all unique and hence able to find out our own answers. He posits that the viewer is here in a position of authority where they can decide for themselves what the ‘secret of life’ is.

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# Climbing your DNA

“DNA is the stuff of life,” said many famous scientists. The discovery of DNA has revolutionised biology. It proves that all life came from one primordial ancestor, which means humans are very closely related to other animals. Whilst sex has made sure we are all individuals with a unique code; DNA is so powerful because its four letters contain a code which, when read, make practically every organism that ever lived. Norbert Francis Attard waded into this maelstrom.

His artwork You Are the Staircase took two twists of a single strand of DNA and magnified its outline hundreds of thousands of times into a six metre metal structure. It was perfectly set on the cross roads between St John’s Street and Merchant Street in Valletta. The structure was based on a spiral staircase inviting any visitors to climb and gain a previously impossible unique vantage point.

The idea formed during a conversation over brandy with Prof. Alex Felice in his living room. Prof. Felice began outlining what DNA is, its significance in the scientific world, and how it has advanced biology and medicine. An extremely enthusiastic Attard asked question after question, but I noticed that the sparks started flying when the images started rolling on Felice’s Macbook. The four colours used by DNA sequencing machines flew up: red, green, blue and black, they became integral in the light strips that swirled around Attard’s artwork — although he didn’t stick to them religiously. Sequencing machine data output results in graphs with elegant peaks, and four repeated letters: A, T, G, C. These DNA letters represent a three-letter code, which relate to 64 different combinations. For example, ATG is a sequence that signals other components to start reading a gene. That gene will eventually be translated into a protein, which form our hair, teeth, eyes and heart. Attard incorporated this into the style and content of the light strips. Unifying everything, three-dimensional artist designs of DNA provided Attard with his elegant swirl. Science was integral in inspiring and structuring the artwork.

In their research, Felice’s team use DNA technology continuously. A previous PhD student, Dr Joseph Borg, studied a Maltese family to investigate the disease thalassemia, common in Malta. With an international team of people, he sequenced stretches of this families’ genome to find a mutation in the KLF1 gene, which helped family members cope with the blood disease. If researchers manage to turn off this gene in adults suffering this disease it would help stop dangerous complications in millions around the world.

Apart from this form of gene analysis and therapy, locally researchers are also using organisms with unique genetic inserts that help their investigations. Dr Mario Valentino uses mice whose neurons shine green when a laser is lit on them. With this technique, him and his team can study how stroke develops in humans. Dr Ruben Cauchi uses fruit flies that have had their genetic code modified to study the human muscle wasting disease spinal muscular atrophy (SMA). The mutation causes the flies to develop a disease very similar to humans. Other scientists are using techniques based on our knowledge of DNA to study cancer. In the future, we might be able to sequence a cancer and give patients a treatment that specifically treats that unique tumour—not every cancer is equal (last year there was an international conference on this issue in Malta). We will also be able to take samples of skin cells, and turn them into fully-fledged organs to replace failing ones. DNA has given us a bright future full of the technology that usually fills science fiction novels.


Location of *You are the Staircase*
Merchant’s Street corner with St John’s Street, Valletta


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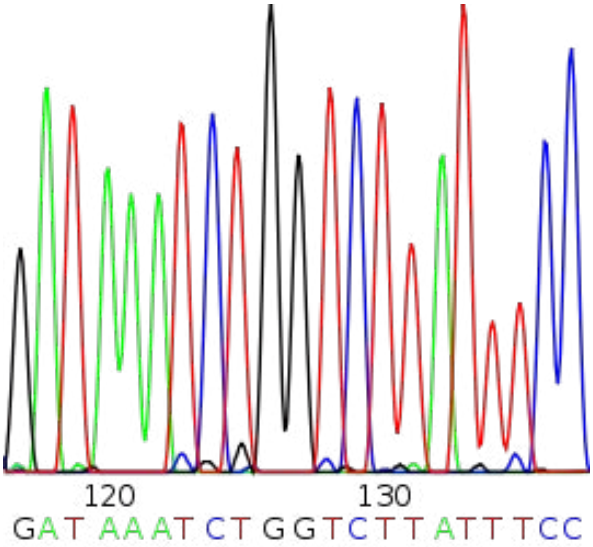


DNA has now become mainstream in the art world. Be warned. There is a lot of gimmicky DNA ‘art’, some pushed by leading magazines. DNA seems to have become a fad. You can send in a swap and receive back a DNA portrait, which is just a technique applied on your DNA giving pretty fluorescent bands separated by size. The method is a very common, and cheap, laboratory technique, followed by some photoshop colour replacement. The DNA can be printed on T-Shirts, posters, gifts, calendars, shoes, and more all for your friends, office, restaurant, or lounge — it overwhelms even this geneticist.

Fortunately, it is not all commercially driven cheap tricks. A two-mile cycle path winds through Cambridge’s beautiful streets created from the colours used in DNA sequencing. Apart from the aesthetic, the path identified a stretch of DNA found in breast cancer patients. Staircases are also quite common. In Florida a Dali Museum has a 75-foot spiral DNA staircase, while in Strasburg France two DNA helixs wind around each other creating an impressive design dominating the interior of a building. Attard’s work differs in many important characters.

By placing a harsh metal structure in the middle of a Baroque city, progress seems to have clashed head on with tradition. Yet, unexpectedly, many passers by commented how it seemed a natural part of the city. Some suggested a permanent residence. The artwork also had a Dr Jekyll and Mr Hyde persona. The contrast between day and night is stark. The day’s grey scaffolding was transformed at night when the LED strips spring to life transforming the art piece and bathing the surrounding square in coloured hues.

One hundred and forty-four custom 87cm long LED strips were used. Each strip consisted of 28 individually controlled RGB LEDs, which total 4032 pixels. The pixels are each mapped using a software that can convert video clips into data to control each LED. The video was translated onto the outside of the spiral staircase. The technology allowed Attard to create spiraling letters of DNA code, and flashes of colour that changed the atmosphere of Valletta’s heart.

The structure used opposing geometries in its construction. Despite the elegant spiral, no part of the art work used curves and instead was held together using straight kee-klamps, commonly used in scaffolding. The illusion of a curved structure out of linear components is a significant achievement and even applies to the rectangular steps. By overlapping each rectangle, the shapes were transformed into triangles conforming their structure to the curvature of the staircase.

The stairs are central to the piece. By climbing these stairs are we simply going nowhere? A criticism on science? Or, is it a shared collective experience (6 at a time)? On the other hand, as everyone has a unique sequence of DNA, the staircase is a unique journey of discovery of the city and upon introspection: ourselves.

EDWARD DUCA, project manager of Science in the City


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SCIENCE IN THE CITY 2012

CO-ORDINATED BY PROF. ALEX E. FELICE AND MANAGED BY DR. EDWARD DUCA

CURATED BY LILY AGIUS GALLERY

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SMART CABS: MR AND MRS PACE

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Malta Council for


SCIENCE IN THE CITY 2012

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