

NOVEMBER 2020 • ISSUE 33

# THINK

IDEAS • MALTA • RESEARCH • PEOPLE • UNIVERSITY





L-Università  
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# Further apart, closer together

*Wear a mask &  
practise physical  
distancing*

## #StaySafe





EDITORIAL

## BREAKING RESEARCH BOUNDARIES

**A**t **THINK**, we like to think of research as akin to Janus, the two-headed Roman god of beginnings, transitions, and portals (well, doorways). With one head looking to the past and the other looking forward, he reminds us that for research to flourish, it must draw inspiration from the past while looking ahead to drive innovation.

A country's cultural identity is based on its heritage. In this issue, we take a look at what the Maltese language sounded like almost five decades ago to gain a better understanding of how it has grown as a language (pg. 20). Museums, which are so often stereotyped as lost in the past, have begun looking at ways to innovate through biomimicry for a sustainable future (pg. 28). On a smaller scale, we take a look at the lessons we have learnt in the past 6 months – developing new ways to work, learn, and teach amidst a pandemic – and zoom out to take a look at the bigger picture (pg. 24).

Transitions and new beginnings always seem daunting, but by keeping the lessons of the past close to heart, we can design a better future.

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COVER STORY



**BREAKING RESEARCH BOUNDARIES**

What lies beyond the horizon? What new concepts will we unearth? This issue's cover illustrates a whimsical and playful interpretation of research.

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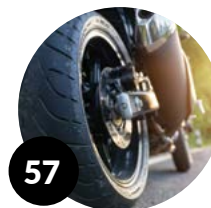
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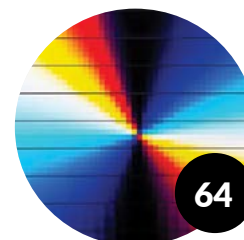
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# THINK

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**L-Università ta' Malta**

# TOOLKIT

Wipe your shoes and clean your mask

Author: Amber Mifsud

**W**hile many were hoarding toilet paper for the impending apocalypse, others were planning ahead, scavenging for parts to create a machine that could sanitise face masks. The idea is to protect citizens and front line workers during the COVID-19 pandemic.

Dr Ing. Marc Anthony Azzopardi told THINK about his new invention. He has developed an electronic method of disinfecting face masks. The idea started germinating in Azzopardi's mind in January, when some of the earliest cases began. Back then, masks started selling at €10 each. By April the price had skyrocketed to €300 – that is, if you could even find one. In Malta they were sold out!

Azzopardi spoke about N95 and N100 respirator masks, which filter at least 95% and at least 99.97%

of airborne particles respectively. They aren't usually worn by medical professionals, except when treating dangerous respiratory diseases like tuberculosis. Instead they are more routinely used by scientists and engineers when handling toxic materials and fine dusts.

These masks sit tighter against a wearer's face, forming a seal. They are made up of several layers: an external hydrophobic layer that repels water, a stiffer layer, an electrically charged, non-woven melt-blown fabric, and finally a comfort layer on the inside. The electrical charge is applied during manufacturing. Once this charge is dissipated (through washing) the masks stop working properly.

Coronavirus is killed when washed in 70% alcohol or with bleach containing 5.25%–8.25% sodium hypochlorite.

The problem is that, unlike regular cloth masks, these respirator masks cannot be washed in liquids, as they then lose their electrical charge and become much less effective at filtering particles. So how can you disinfect them after use?

Azzopardi realised that by using UV light, it was possible to disinfect the mask without affecting its electrical charge. His solution was elegant and simple: a sealed box which would store the mask and expose it to UV light from all directions – effectively creating a sanitisation chamber.

Essentially, the sanitisation chamber is an enclosure which uses a low-pressure mercury lamp to generate UV inside. Following a discussion with the Infectious Disease Unit at Mater Dei, the design evolved and was adjusted to suit the masks being used by the hospital staff.



**Dr Ing. Marc Anthony Azzopardi with the mask sanitising chamber**  
*Photo by Sarah Zammit*

On the other side of the Atlantic Ocean, similar methods were being trialed in the US, the difference being that instead of using a box, US scientists were using a room to leave the masks hanging. The room would then be exposed to UVC through a small tower, disinfecting the face masks. Contaminated masks would be brought to this room from all over the hospital for cleaning, the hazards created by the complicated logistics notwithstanding.


Disinfection was made possible by using UV light, of which there are 3 types: UVA, UVB, and UVC. Very few organisms have evolved to resist UVC, and upon exposure, DNA gets tangled up, making it impossible for the virus to replicate in our cells. COVID-19 uses ribonucleic acid (RNA), which is also susceptible to UVC. Using UVC light at

around a 260 nanometer wavelength can “inactivate” the RNA code for COVID. This makes it harmless if breathed in.

The system itself is foolproof. It prevents the user from getting exposed to dangerous UVC radiation. A timer makes sure that users leave the masks for the right amount of time. And, it tests that all of its systems are functioning before starting. When the team started building this system, they didn't have access to UV measuring instrumentation. This meant they worked solely off calculations to get it right. However, after weeks of work, the team managed to perfect their design.

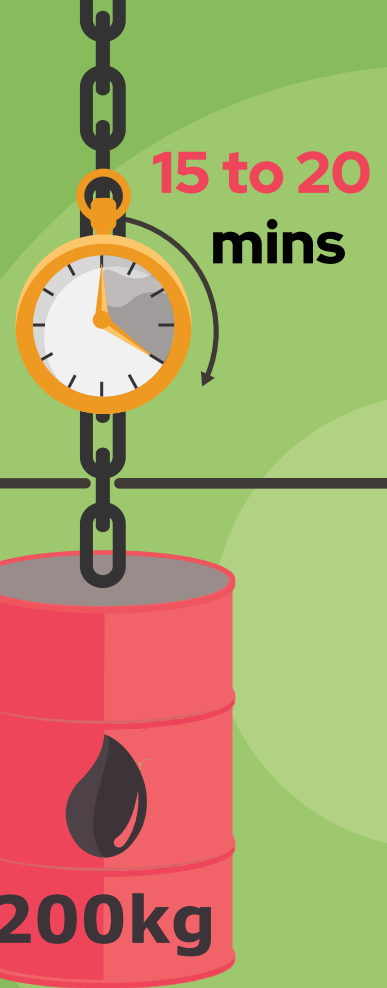
Nonetheless, face masks do not last forever. Even UV exposure can wear them down eventually, but only in large doses. You would have to get rid

of your respirator masks long before the UV damage became significant, because of dirt or mechanical wear and tear breaking the mask down.

Azzopardi and his team's efforts have helped to safeguard numerous front line workers from running short on clean supplies, and their system has earned them an award for the top solutions in response to the MDIA / Covid initiative. It is thanks to the scientific community and their efforts that we can have the technology for a safer future. However, creating that ideal future is up to all of us. Stay Safe! 

**Further reading:**  
*Covid-19 - Malta Digital Innovation Authority. Mdia.gov.mt. (2020). Retrieved 23 October 2020, from <https://mdia.gov.mt/covid19/>.*





**Airbus A320**

# WITHOUT BORDERS

## Reducing aircraft emissions on the ground

Author: Dr Robert Camilleri

**A**viation has delivered worldwide social and economic benefits. This has come at a price. Aviation contributes to roughly 2% of all global emissions. However, pre-Covid-19, the industry experienced a growth rate of approximately 5% per annum. Despite the current slowdown, the industry has time and again shown resilience, and it should recover in a few years. The industry might take this period as an opportunity to clean up its act.

The Advisory Council for Aeronautics Research in Europe (ACARE) has set aggressive targets to reduce in-flight CO<sub>2</sub> emissions by 75% and NO<sub>x</sub> emissions by 90% when compared to the year 2000. All aircraft ground movements should be emission-free. Reducing ground emissions is vital, as it is linked to life-threatening respiratory illnesses. As airports and cities continue to grow, space becomes more limited, heightening the problem.

Pre-Covid-19, short-haul flights dominated European aviation, with Ryanair and Easyjet commanding a combined fleet size of over 700 aircraft. Such flights are efficiently

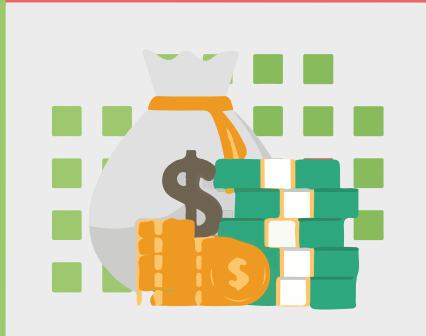
performed through regional jets and single-aisle, narrow-body aircraft such as the A320 and B737 aircraft.

The KERSair project (funded by the Fusion R&I Technology Development Programme) produced a techno-economic study that showed that airlines which employ quick turnaround times manage 3–5 flights daily for each aircraft. This strategy maximises aircraft use but increases fuel use and emissions. These aircraft also use more fuel while taxiing on the ground. A typical A320 consumes over 200kg in fuel for a 15–20-minute taxiing process. If applied to the Ryanair fleet, this results in a fleet fuel cost of 75 million Euros per year on the taxiing process, with emissions on the ground of 0.5 million tonnes of CO<sub>2</sub> per year.

Many research teams are trying to solve this multi-million Euro problem. Some have attached electric motors to aircraft wheels, but this was found inefficient due to the electrical power needed. The KERSair project's technology recovers the energy usually lost while braking to make aeroplanes much more efficient. The

# Fleet Annually

€ 75,000,000



# 0.5 million tonnes of CO<sub>2</sub>


KERS-air (R&I-2017-005-T) is financed by the Malta Council for Science & Technology, for and on behalf of the Foundation for Science and Technology, through the FUSION: R&I Technology Development Programme.

Further reading:

ACARE. (2020). Aviation in Europe: a vision for 2050 [Image]. Retrieved 27 October 2020, from <http://www.cleansky.eu/sites/default/files/documents/acare-sria-citizen.pdf>.

Our fleet | easyJet. Easyjet.com. Retrieved 27 October 2020, from <https://www.easyjet.com/en/help/boarding-and-flying/our-fleet>.

Ryanair fleet | Our Boeing aircraft. Ryanair.com. Retrieved 27 October 2020, from <https://www.ryanair.com/mt/en/useful-info/about-ryanair/fleet>.

tech helps temporarily store the energy to be used for engine-less taxiing. The project has so far investigated mechanical and electrical energy storage systems and is currently analyzing their energy and power density to complete a typical taxiing cycle. The project aims to develop a proof of concept by the project's end. To achieve the highest impact possible, the system has to be retrofittable with the existing fleet and independent of existing aircraft power systems. The project aims for a system weighing less than 200kg to avoid offsetting the environmental benefits achieved on the ground by higher in-flight emissions. The future breathes cleaner. 

KERSair is a three-year research collaboration between the Institute of Aerospace Technologies, the Department of Industrial Electrical Power Conversion within the University of Malta, Medavia Ltd., and the University of Nottingham, UK. The project is led by Dr Robert Camilleri (UM).

# DESIGN

## Quality Education for All

Author: Nicholas Gambin

In today's society, more than 262 million children and youth are not in school. To combat this, the United Nations established Sustainable Development Goals (SDG) in order 'to achieve a better and more sustainable future for all' by 2030. One of these goals, SDG4, is on the importance of quality education, which inspired two art pieces created by Zarifa Dag and Martina Camilleri.

Both artists took part in a design competition organised by the University of Malta's Faculty of Education, asking participants to submit creative designs inspired by the theme of SDG4, which focuses on inclusive and equitable quality education.

Zarifa has a background in graphic design and digital arts, and her submissions for the competition were heavily inspired by her dual cultural identity, as she has both European and Middle Eastern roots. She travelled to Lebanon in 2018 and volunteered in refugee camps, working with the children of immigrants who fled to Lebanon because of conflicts happening in countries like Syria. This experience allowed her to witness first hand the differences in quality of life and education between children in Malta and refugees.

Zarifa's piece is titled *Halep'te*, which is Turkish for "In Aleppo", referencing one of the major cities in Syria. Her illustrations centre around an adolescent, representing the younger generation and their future, as well as the people that are at the centre of SDG4. She brings in multiple cultural references through the turban (the Middle and Far East) and crescent (Islam). While her narrative begins with a somewhat bleak representation of the current situation in children's education, it ends with an element of hope that the situation may improve.

Martina Camilleri, who holds a Masters of Art in Social Practice Art and Critical Education, presented her take on SDG4 and quality education through a piece titled *En Root* – a play on the term 'en route' – which explores the journey someone takes to get their education. For her first artwork, *Seeds We Sow*, she asked 40 participants about why they keep looking for education or teaching

opportunities. She then photographed their hands and transferred the images onto wooden planks, writing their responses behind each individual plank.

Her second artwork, titled *One Piece*, consists of five distinct pieces made from ceramic and mixed media. They represent the five objectives outlined in the Universal Agenda towards quality education: People, Planet, Prosperity, Peace, and Partnership. The pieces do not embody any of the terms individually. Instead, the art views the terms as a unified whole.

Zarifa and Martina's artworks can be viewed along the main staircase of the Faculty of Education in the Old Humanities Building at the University of Malta. Although the artists interpreted the SDG4 in different ways, they both emphasised the importance of human-centred design. In essence, if somebody is going to use the product, then they should help construct it. The same approach could help achieve quality education for all children, despite socio-economic factors. **T**



*One Piece (detail) by Martina Camilleri*

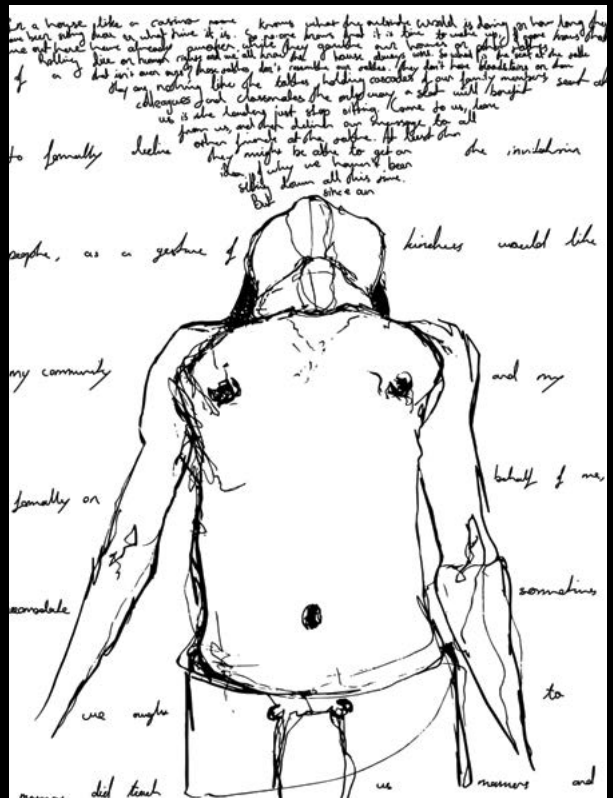




The Seeds We Sow by Martina Camilleri



Halep'te (beginning) by Zarifa Dag



Halep'te (end) by Zarifa Dag



# Paging Dr AI to Radiology

**Robert Pisani, Amy Xuereb**

**A**rtificial Intelligence (AI) is revolutionising the world. We have self-driving cars, algorithms determining future market patterns, and computers diagnosing disease. We believe that AI is supporting huge developments in healthcare.

AI is defined as the ability of a computer system to perform tasks commonly associated with intelligent beings. It comes as no surprise that AI has had an impact on radiology; a crucial profession in healthcare that uses imaging technology to diagnose and treat disease. Many in the field fear that AI will snatch away their profession.

Machine learning is a fundamental component of AI. It is defined as the use of algorithms for computer systems to extrapolate information based on their observations and previous experiences. "Spotify" is a great example that uses machine learning when recommending music. It uses previously viewed items in order to suggest similar media which the user may like. Large volumes of data are required for machine learning to be effective, as computer systems must be trained to perform a task.

In radiology, AI has several potential uses ranging from radiotherapy to medical imaging. The AI typically does a specific task, like detecting the causes and effects of a disease or recreating human anatomy. Computer-aided diagnosis helps mark areas in radiographs which may contain pathologies such as tuberculosis and vertebral compression fractures. AI can even identify the type and grade of certain diseases. Approximately 40 million radiological reports contain interpretive errors, predominantly by radiologists. AI may markedly improve

patient safety. In radiotherapy, it can also reduce the time to plan treatments, by contouring the anatomical structures, helping patients receive faster treatments.

Although AI has several advantages, it is far from perfect. We believe that human interaction is still key. Healthcare professionals do their work with dedication and empathy. AI cannot provide the same sense of comfort and reassurance. A possible setback could be that patients might not provide a comprehensive medical history to an AI agent they do not trust. Most patients give accurate and detailed histories when they are comfortable with healthcare professionals. A radiographer is responsible for optimising the radiation dose and image quality specifically to a patient. It would be interesting to see if and how AI would manage to do so, as well as the ethical consequences of AI making such life-dependent decisions.

With so many advancements on top of speed and precision, AI-driven automation may eventually have the power to fully interpret a radiological image, prescribe medication, or even improve image quality and reduce scan times. However, such tasks are still performed in conjunction with healthcare professionals as opposed to replacing them. Therefore, although certain tasks will be taken over by AI, the role of healthcare professionals will not be made redundant.

AI already has several uses in radiology, all carried out in conjunction with healthcare professionals. Future enhancements in this field will allow for new techniques and better patient care. Until then, we look forward to seeing what further developments AI has in store for us. **T**



## The Comfort Trap

### Prof. Claude Mangion

**A** good way of understanding a concept is by looking at the way people use it in everyday conversations. Language embodies the accumulated wisdom of countless speakers who have expressed their understanding to others over long periods of time. By analysing the way we use the term 'comfort zone' we can better understand what we actually mean when we use it.

One of the most frequent uses of 'comfort zone' is the expression to 'leave our comfort zone.' By this, we usually mean that we should not always stick to the same routines, habits, and maybe even friends; the underlying assumption seems to be that we are living predictable lives, much in the same way as we would describe someone as a 'creature of habit'.

This view might be legitimately challenged with a simple, 'What's wrong with that?' or 'Why should I leave my comfort zone if it is the space within which I feel most comfortable?' This

view clearly has some merits: it is a constitutive feature of our psycho-social make-up that we follow certain behavioural patterns in our lives, not only – to use another expression – out of 'force of habit', but simply because we enjoy these habits, because they are pleasurable and the thought of eliminating them from our lives makes us uncomfortable. It would not be an exaggeration to say that our 'comfort zones' are an essential part of our identity. They generate a feeling of well-being within us.

Given this, why is there an underlying sense of disappointment at those who refuse to leave their comfort zones? Why is 'breaking free' of one's comfort zone almost considered a prerequisite for living a fulfilling life? Part of the answer is that living in one's comfort zone can lull a person into a false sense of security. We might end up avoiding tough but crucial decisions. One might remain in a suffocating relationship or at

a mind-numbing job simply because it is easier to stay within one's comfort zone than to face new challenges and risks.

Leisure time also falls within our 'comfort zones'. Some go to the same restaurants every weekend or visit the same countries when they go on holiday. It might be that as we get older, we tend to forget the thrill of experiencing something new, the challenge of facing the unpredictable. This doesn't necessarily mean jumping out of an aeroplane (although it could) but it can simply be the effort to reach out and meet new people. It can also – and this is my personal favourite – involve travelling to various cultures, relishing the differences between others and myself.

What I hope this short article shows is that while 'comfort zones' are a necessary feature of social living, leaving such zones – at least occasionally – can provide rewards that were previously unimaginable. **T**



# STUDENTS



## Paceville: Communities & Conflict

**Jean Paul Vella**

**A** community is more than just a group of people who live in the same area. A community requires commonalities, communication, and context. When one of these factors doesn't hold true, then there is no community, and if there is no community, then what is there?

Individuals can exist on their own, but we, as social animals, are constantly seeking to be amongst similar people. That sense of belonging can be fulfilled within a group formed by people with interests and traditions which are seen as normal within the group but not necessarily within the public sphere.

Let's take Paceville (a nightlife area in Malta) as an example. It is a petri-dish of different social, cultural, and economic backgrounds. These groups can be native to the area, such as residents that are identified as either local or foreign. The existence of these two groups is acknowledged from either side, which sees an individual being automatically classified into one group or the other on the basis of nationality. That being said, the group labelled as 'foreign' is further composed of smaller groups identified by their ethnicities.

On the other hand, a group can be external to Paceville, referring to those affiliated with the area in a functional manner. A prominent example is the consumer

audience, composed of individuals that are alien to the locality's lifestyle but contribute to its economic factor. The term 'consumer' refers to clusters of people such as tourists, partygoers, and retail shoppers. As a result, these clusters are not classified by their ethnic identities but instead by their role within the social sphere. Some of these groups are time-based, such as partygoers at night and retail shoppers during the day.

When groups come into contact, they either discover commonalities or conflicts. Should the two groups conflict, then their differences are further enforced as separating factors. If they have substantial commonalities, they can form a new community. Within a new community, state-affiliated stakeholders may improve public life with initiatives such as public feasts, community policing, and social spaces.

In order to encourage more positive communities, it is important that we focus on commonalities and view our differences as a means for growth rather than a source of conflict. **T**

*The author would like to thank the Faculty of Media & Knowledge Sciences (Media & Communications Department) for their guidance throughout the research initiative.*



# A Machine's Hallucinations

**Abigail Galea**

**H**ave you ever looked at a turtle and thought it was a rifle? I'm willing to bet that most of you have not. This may sound like an absurd case, but it is exactly what happened when researchers at MIT (Massachusetts Institute of Technology) were trying to find vulnerabilities in machine learning systems developed by Google. They altered a few pixels of the picture of a 3d-printed plastic turtle, and a seemingly unchanged and harmless plastic turtle was classified by Google's algorithm as a rifle. The picture still showed a plastic turtle, so where did the algorithm go wrong?

Hallucinations have given the field of artificial intelligence (AI) a few teething pains. Adversarial machine learning is a relatively new field of machine learning. This field of study is trying to break machine learning algorithms by tricking them into thinking that one thing is another or to miss a signal completely by very slightly altering the input. In doing so, researchers hope to reverse engineer what a neural network may be learning from the data it is trained on, by seeing what works to fool the system and what doesn't.

Machine learning techniques follow a black box model. They are so powerful because they can learn the best way to do something from data sets. The parameters are tweaked to achieve the best result. While the process that goes on in between is relatively opaque, adversarial machine learning researchers are trying to open that black box.

Researchers are aware that flaws and mistakes happen, but we do not understand exactly why or how. The main speculation is that the visual world is very complex and

an image is usually made of millions of pixels. Given this large amount of information per image, the algorithm needs to be able to find patterns within the image and then also across images to be able to come up with a classification — in the original case, whether it's a turtle or rifle. This means that some datasets may not be large enough to capture the essence of objects and the differences between them. Another hypothesis is that humans and computers may be looking at different things when trying to classify an image. In other words, humans might just be missing out on certain pixel-level details which are essential for computer classification.

AI is being given new responsibilities, from self-driving cars to the personal assistants in our pockets. This newfound responsibility highlights why we need to know how machine learning systems work and where their blind spots may lie. We cannot afford to have our machines hallucinate whilst driving and miss the stop signs. **T**

#### Further reading:

**Matsakis, L. (2019). Artificial Intelligence May Not 'Hallucinate' After All. Wired. Retrieved 27 October 2020, from <https://www.wired.com/story/adversarial-examples-ai-may-not-hallucinate/>.**

**Simonite, T. (2018). AI Has a Hallucination Problem That's Proving Tough to Fix. Wired. Retrieved 27 October 2020, from <https://www.wired.com/story/ai-has-a-hallucination-problem-thats-proving-tough-to-fix/>.**









## BREAKING RESEARCH BOUNDARIES

We believe that research ought to serve as the foundation for modern, innovative ideas. We ask how academics and scholars are developing their research in order to foster innovative ideas.

They might do this by utilizing modern technology or by taking an interdisciplinary approach. But the ultimate goal should always be to develop new ideas and push the boundaries further.



### **Underwater History becomes Virtual**

*Dive into Malta's underwater history, from the comfort of your own home*

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### **The Language of Learning**

*What is it like working with a global company like IBM?*

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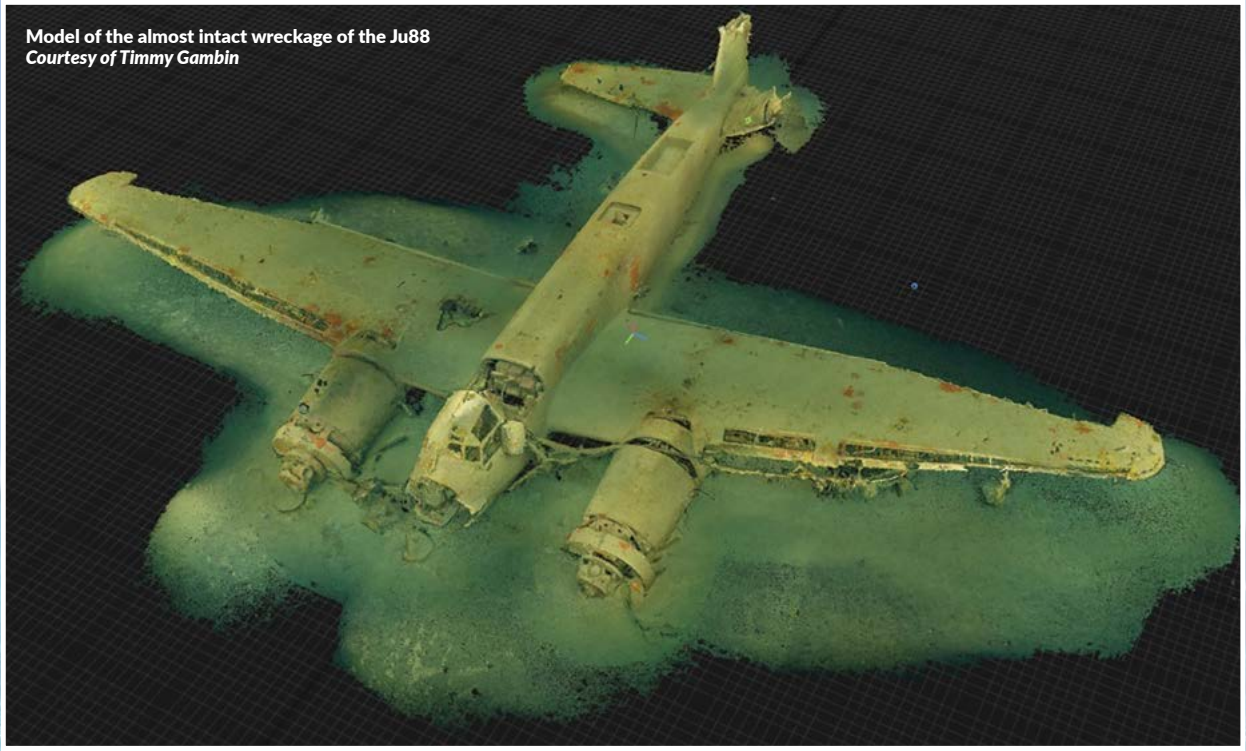
### **How DNA can improve Biodiversity Knowledge and Conservation**

*A wildlife DNA barcode library to help protect wildlife*

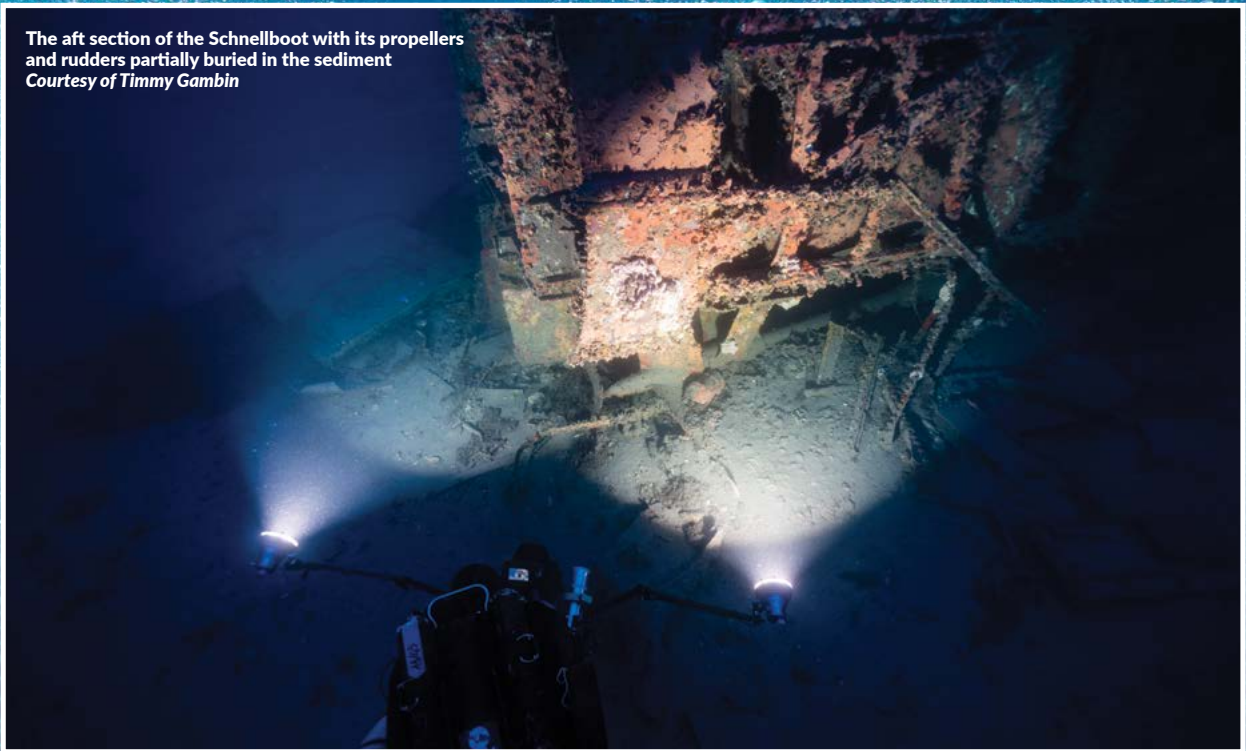
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Model of the almost intact wreckage of the Ju88  
*Courtesy of Timmy Gambin*



The aft section of the Schnellboot with its propellers and rudders partially buried in the sediment  
*Courtesy of Timmy Gambin*



# Underwater History becomes Virtual

Author: Martina Borg

*Imagine trying to solve a puzzle while you're still looking for half the pieces. Now, combine that with limited oxygen and the pressure of the sea upon you. Underwater archaeologists go through that with every discovery they make. Their research takes them to incredible depths to analyse sunken historical artefacts from shipwrecks to planes. THINK takes a look at how local researchers utilise interdisciplinary approaches to bring together scientific machinery, technological developments, and national entities to unlock Malta's history.*

The Mediterranean Sea is one of the world's biggest repositories of human history. Flanked by some of the most powerful and all-encompassing civilisations, this sea is filled with silent treasures waiting to be discovered. Malta is right at the centre of this culturally and historically rich region. Its seabed houses some exceptional fragments of bygone eras.

Professor Timmy Gambin (University of Malta [UM]) has made delving under the surface his life's mission. THINK caught up with the researcher just ahead of a scheduled dive with his team.

## FROM PHOENICIA TO THE COLD WAR

Starting with a BA in History at the University of Malta, Gambin developed a deep interest in maritime archaeology, going on to attain an MA in the subject, and he hasn't looked back since. Throughout his career, Gambin has combined his passion for history and the latest technological innovations to uncover some of the most important archaeological sites on Malta's seabed. Indeed, the professor has a number of significant and notable discoveries and excavations under his belt. These include over 50 submerged aircraft crash sites dating from various historical periods, including World War II and the Cold War.

But we couldn't discuss Gambin's research without mentioning what is perhaps the most notable project in his portfolio: the Phoenician Shipwreck. This ongoing excavation, which is situated off Xlendi in Gozo, is not only the oldest known shipwreck in the central Mediterranean, but also boasts being the first ever archaeological excavation by divers beyond 100m.

The site was first discovered in 2007 during an offshore mapping survey directed by the UM in collaboration with Heritage Malta and the Superintendence of Cultural Heritage. The Phoenician Shipwreck comprises an intact mixed cargo dating back to around the 7th Century BC, and it provides a window into the economic trade networks of the region during the Archaic Period. Besides its historic significance, Gambin explains that the site has also presented various challenges in terms of access and research methodologies.

'We can only spend fifteen minutes on the site during every dive,' he says, adding that two boats, two boat men, two shallow support divers, and multiple technical divers are required for every expedition. He adds that the research has been split into various phases, and that there is still much to uncover. Prior to the start of the excavation, the team also utilised specific equipment such as a Sub Bottom Profiler to analyse what lay below the visible sand layers. ▶





**Phoenician Shipwreck, Xlendi Bay Gozo**  
Courtesy of Timmy Gambin

'An international team was formed in 2014 when we started using manned submersibles to obtain photographs and ultimately create a 3D model of the site, as well as recover some artefacts for further study.'

Gambin explains that the Phoenician Shipwreck was found during another project he conducts – that of surveying the seabed in Maltese territorial waters. 'Our aim is to ultimately create an archaeological map of the important sites on our seabed in order to inform decisions about the protection and management of Malta's underwater heritage.'

This mapping project started back in 2005. Over the past two years it has made use of an Autonomous Underwater Vehicle (AUV), which was provided through the SINTEGRAM Project and which carries a high-

resolution side-scan sonar to map the seabed. Such innovative technology and subsequent dives require further funding and intense logistical planning.

### ARCHAEOLOGY FOR ALL

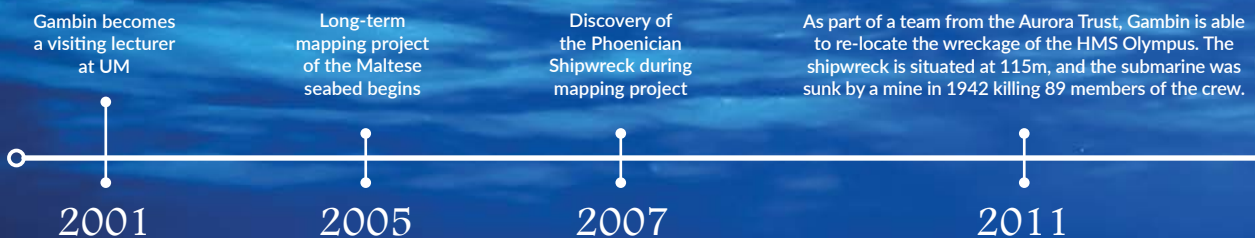
Gambin's latest project is a happy offshoot of this years-long endeavour, which could potentially spur even more research. 'The Virtual Museum' – a recently launched website funded by the Malta Tourism Authority – presents important underwater archaeological sites around the Maltese seabed. Access is free to all, and this groundbreaking virtual museum is run in collaboration with Heritage Malta.

'I think research and exploring more sites will make us better teachers and keep lectures fresh for students, but I hope that this project reaches the general public, to whom this heritage

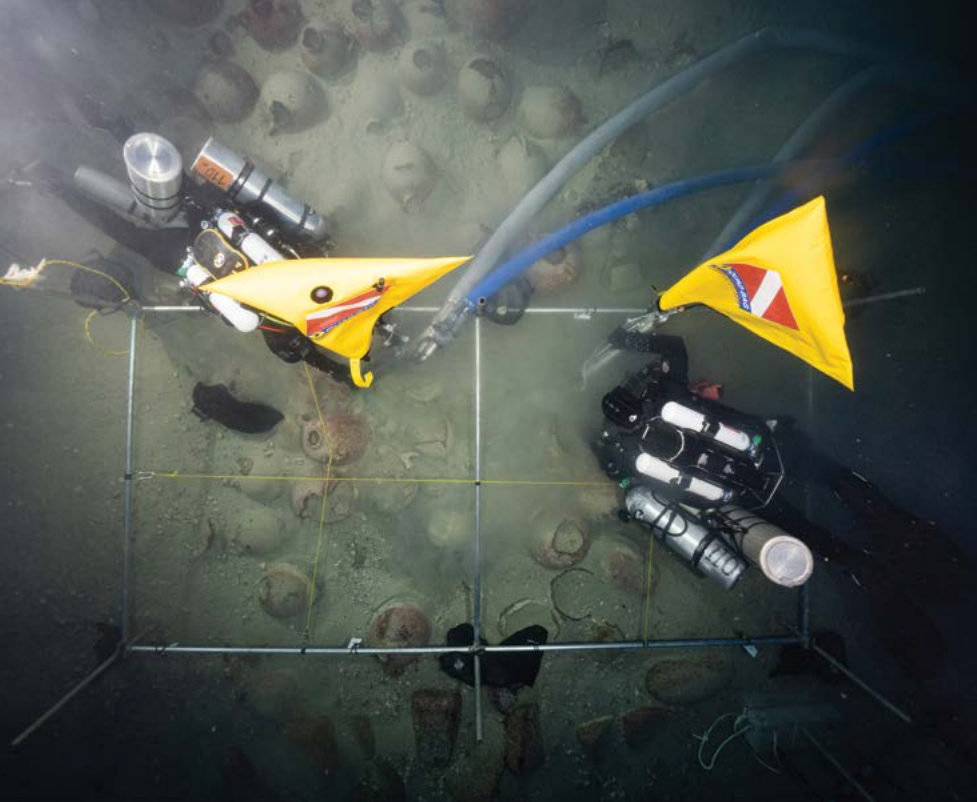
also belongs,' he says, explaining the rationale behind the idea.

'The way I see it, since the UM is funded by the state, we need to make sure that the public also reaps the benefits of our research. Furthermore, the globally available museum will garner attention and inspire people with an interest in history, science, and diving to possibly travel to the island.'

Gambin adds that showing citizens what is beneath our seas can also increase appreciation and respect towards this invaluable heritage, encouraging them to actively protect it. He explains that there aren't many virtual museums that boast as much detail and user-friendliness. He goes on to take me on a tour of the impressive virtual museum. Every page takes visitors to a 3D model of a wreck. Hovering around the screen also offers







Prof. Timmy Gambin

information about the specific site, detailed sections of the wreckage that have been through conservation processes, as well as what the wreckage may have looked like in its previous life.

'Every archaeological site already on the website required a series of dives where we could survey and photograph the wreck. These photos would then allow us to create the 3D and virtual reality models you see on the website.'

He adds that the team would sometimes need multiple dives to obtain full coverage of the sites, and that dive teams for this project were composed of one cameraperson, a light operator, and a safety diver.

Launched on the 30th June, the website already hosts 10 different sites, and the plan is to have about 20 more by the end of 2021. Gambin adds that he hopes to revisit some sites

he has already explored to be able to present them to the public with the infinitely more sophisticated technology available to him now. A key site lies in Mellieħa Bay: a Roman shipwreck first discovered in the 1960s by noted marine archaeologist Honor Frost. In 2013 and 2014 the UM organised field schools to further examine the site.

'We hope to include such excavations in the museum,' he says, looking to the future. 'This museum was a result of enthusiasm, vision, and five years of plans and collaborations with different local and foreign experts including website creators, software specialists for the 3D models, and various other people to ensure data quality on the website.'

It may be hard to understand how someone can maintain so much passion and determination for a project and

yet be willing to make it accessible to everyone for free, but Gambin explains it in very simple terms. 'The more we publicise how rich our underwater heritage is, the more the public will be aware of why we need to preserve these sites,' he shrugs, as some of his team pop into his office to ask for further details about their approaching dive.

As a researcher who is always pushing the boundaries and delving deeper, Gambin has already had an impressive career. He humbly brushes off any awe though, insisting that he usually comes up with fresh ideas and then sets about the practicalities with his team later on in the process. This surely won't be the last of his projects we hear about, and he is convinced that with the right amount of support, dedicated researchers like himself can continue to make history accessible to all. **T**

Gambin becomes a senior lecturer at UM

2012

Gambin organises 75th anniversary commemorations, including a dive to place a memorial plaque on the site of the HMS Olympus

2017

The UM team led by Gambin conducts the first archaeological excavation by divers beyond 100m

2018

Virtual Museum – Underwater Malta is launched to share Malta & Gozo's underwater cultural heritage with citizens

2020

# What did the past sound like?

## English version



The way Maltese sounds has evolved over the decades. While written examples of Maltese have survived, records of how it was spoken are much more scarce. However, thanks to the efforts **Prof. Alexandra Vella** (UM), **Prof. Ray Fabri** (UM), **Dr Michael Spagnol** and **Anthony Baldacchino**, we now have the opportunity to hear firsthand what Maltese sounded like 60 years ago!

Collecting dust: hours upon hours of Maltese heritage, all but a drop in the ocean in an office overflowing with manuscripts. The father of Maltese Linguistics, Professor Guzé Aquilina, put a lot of effort into these magnetic polyester reels, but they were forgotten and along with them, essential perspectives of our Maltese heritage.

These reels tell quite the story.

Using the magnetic ribbons of polyester in use at the time, Aquilina recorded hours' worth of dialectal Maltese speech in the 60s and 70s, peppered with all its vowels, consonants, and respective articulations. He did this whilst enlisting the help of his colleague and former Head of Department of Semitic Studies, Benedikt Isserlin from the University of Leeds, who had a special research interest in Arabic dialects. The pair and all those involved immortalised on these reels the different and unique ways locals from different areas in Gozo and Malta spoke. This was done using a reel-to-reel machine feeding from a microphone, which provided an outlet

for participants to pour their hearts out. One reel would unwind, and the other would build up, its magnetised strips now hosting disembodied revelations about different Maltese speakers and their language. These recordings, holding approximately 50 hours of content spread across 92 audio files, were all subsequently compiled and results published, highlighting the characteristic spoken language across the Maltese Islands. Later on in 2015, John Paul Grima structured his Bachelor's dissertation on this, listening to each and every audio file individually, vigilantly documenting the speakers and their language.

Dialects nowadays are seen as a distinguishing feature of Maltese peoples' character. They are seen as language spices, but this was not always the case. Dialects were previously looked down upon as representing a lower class, the type of people no self-respecting individual should speak to. It is very interesting to note that although this is for the most part true in Malta, some Gozitans view dialectal spoken language differently, branding it a more prestigious version of standard Maltese.

Aquilina realised that chronicling these irreplaceable pieces of history was a vital means to preserving an important aspect of Malta's heritage.

Aquilina spoke with the ironsmith hammering his mark into cast iron, speaking to the world of the materials and tools of his trade as he beat, hammered, pierced, roughened up, and smoothed his material. He met the Gozitan lace maker whittling away with her delicate fingers, describing how the final piece had to be starched using flour and sugar to get the desired colour, ensuring the most beautiful result possible. Or the baker producing beautiful freshly baked creations, processed through the help of his invaluable 'doughers' – the embodied dough mixers.

Aquilina captured people's lives in their homes and at their places of work. He simply asked them to speak about their lives in their chosen dialect whilst also eliciting data on their use of dialect. The tapes he recorded decades ago eventually ended up in Professor Fr Edward Fenech's office, who was Head of the Department of Arabic and had been a member of the original





Reel-to-reel tape machine  
Photos by Sarah Zammit

team of researchers involved in collecting the dialect data.

These time-capsules do not last forever. Humidity, dust, and voltage differences within the magnetic strips all wear them down. But, a team of researchers from the Institute of Linguistics, Department of Maltese (of which Aquilina was Head) and different departments from the Faculty of Arts, set out on a mission to save these reels. They could not do this without technical support from the then University Radio, notably, Anthony Baldacchino.

Baldacchino and the team of technicians raced against time. The physical integrity of the reels needed to be maintained. The reel-to-reel machines slowly started to break down. These voices could not be lost. Directed by Prof. Alexandra Vella and Prof. Ray Fabri, the team set out to make sure that the recordings would be preserved for a much longer time

by carrying out the laborious task of digitising and documenting the contents of each and every reel. They transferred the precious data to more modern CDs.

The project has been deemed successful. The recordings are soon going to be made available on the web page dedicated to Maltese dialects on the portal of the Department of Maltese. These recordings are important for Maltese people's sense of identity and belonging. They show the richness of dialect articulations across different Maltese and Gozitan localities. This wealth was nearly lost to time and mould. This team has made sure that although some dialects may have changed – or may even no longer be in use – they can still be heard at the click of a button. Thanks to this project, the Maltese dialect, a fundamental part of what makes us Maltese, will now remind us who we were and have the potential to be. [T](#) [D](#)

You can hear a sample of Prof. Aquilina's digitised recordings by scanning the QR codes below.



L-Ghasri - 1964-1969



L-Gharb - 1977



Iz-Żurrieq - 1966



Is-Siġġiewi - 1977

# Ithna mill-impghoddi

Maltese version



Kaxxi fuq kaxxi, miksijin bl-għabra, jistennew is-sekondiera tagħmel ir-ronda tagħha. Is-sekondi jsiru minuti. Isiru sigħat. Ġranet.

Xhur. Snin shaħ. Deċennji, sewwasew.

Il-Prof. Edward Fenech wirithom mingħand il-Prof. Ġużè Aquilina, imma ġara li l-kaxxi u ta' ġo fihom ingħataw il-ġenb għal hafna żmien. Parti ġmielha mill-istorja lingwistika u kulturali tagħna konna bil-mod il-mod qed nitilfuha minn taħt imnehirna.

Mistura fil-kaxxi nstabu r-reel-to-reels li l-Prof. Aquilina, missier il-Lingwistika Maltija, kien uża biex jimmortalja l-ilhna bil-kisra djalettali ta' bosta kelliema minn lokalitajiet differenti f'Malta u Għawdex.

Illum, kulma jmur qed nagħrfu u napprezzaw il-ġmiel ta' mużajk li jsawru d-djaletti tal-gzejjer Maltin. Iżda, sa f'it snin ilu, min jitellem bid-djalett aktarx li kien jiqies ta' klassi baxxa. Ftija tal-preġudizzju, xi wħud ippruwaw jinfatmu minn dan l-aspett ewlieni tal-identità kulturali tagħhom. Il-preżenza tad-djalett qajl qajl bdiet tiddgħajef. In-nies thalltu fiż-żwieġ, u magħhom thalltet

il-lingwa. Min mar joqgħod f'rahal iehor kien espost għal djalett differenti, u t-tfal bdew imorru l-iskola u jitgħallmu l-Malti standard, 'il-pulit', sajjem minn xi karatteristiċi li jżewqu t-taħdit.

Il-Prof. Aquilina minn kmieni għaraf li haġa daqstant sabiħa ma kellniex nerħuha tiżolqilna minn idejna (jew ħalqna f'dan il-każ), u fis-snin sittin u sebghin, irhielha lejn xi rħula Maltin u Għawdxin, idur bir-reel-to-reel recorder, jithaddet man-nies dwarhom infushom, dwar is-snaġja' tagħhom, u dwar it-tradizzjonijiet li wirtu bil-fomm u bl-id. Bil-mikrofonu kien qed jaqbad il-ħsejjes u l-forom tad-djaletti, imma mhux biss. Ma' kull intervista, kien qed jiddokumenta stil ta' għajxien li illum jinħass tant 'il bogħod. Bl-għajnuna ta' Benedikt Isserlin mill-Università ta' Leeds ġabar 92 audio file b'madwar 50 siegħa taħdit djalettali, mhux kullu tal-istess kwalità. Bil-materjal miġbur, Aquilina u Isserlin fl-1981 ħarġu pubblikazzjoni li tittratta elementi fonoloġiċi tad-djaletti. Daqs tletin sena wara, John Paul Grima sema' l-audio files wieħed wieħed, u b'reqqa kbira

ddokumenta u kkataloga l-ħidma fit-teżina tal-Baċcellerat tiegħu.


Fost l-ilhna li ltaqa' magħhom Aquilina, hemm tal-iskarpan mill-Għarb, li, hu u jmertel il-ġild, jispjega l-proċess tal-ħjūta bl-aktar ġild fin Inġliż. Thaddet mal-għaġġiena mix-Xagħra, li tispjega kif hobża titwieled mid-dqiq, tingħagen u tinħadem sakemm issib ruhha fuq it-tilar, lesta biex tinhema. Tkellem mar-raħħala Żurriqija fuq kif iġġiż in-nagħġa biex thaffilha s-suf, fuq nagħġa zġhira li għad ma kellhiex ħaruf (għabura), u n-nagħġa li qatt ma kellha (ħawlja). Skopra kif ix-Xlukkajri jaħslu l-ħwejjeġ bl-ilma salmastru fil-Fawwara tal-ħasselin, u sema' kif tinħadem u tithejjet il-bizzilla f'Ta' Sannat, skont il-bixra li l-lingwa tieħu f'kull post.

Dan il-materjal prezzjuż inżamm f'kaxxi li maż-żmien għoddom intesew. Kien b'kombinazzjoni li wara ħafna snin ir-reel-to-reels sabu ruħhom fl-istudio ta' Anthony Baldacchino. U minn hemm, fuq l-inizzjattiva tal-Prof. Alexandra Vella, beda l-proċess biex il-materjal maħzun fihom jiġi ddiġitalizzat. Xejn ma kien faċli li l-kontenut tar-





reel-to-reels l-antiki jinqaleb f'format diġitali. Illum, l-ilhna tal-imghoddi f'dan il-format, ftit ftit qed jittellgħu fil-portal tar-riċerka malti.mt, li d-Dipartiment tal-Malti se jniedi fix-xhur li ġejjin, halli jkunu aċċessibbli għall-istudjużi u għal kull min għandu interess fid-djaletti, is-snaġġa' tradizzjonali, u b'mod ġenerali l-hajja fl-ewwel snin ta' wara l-Indipendenza.

Bis-saħħa ta' dan il-proġett, ikkoordinat mill-Prof. Alexandra Vella, il-Prof. Ray Fabri u Dr Michael Spagnol, dan il-felli tal-istorja tagħna jista' jittgawda mill-pubbliku u jiġi studjat mir-riċerkaturi halli nifhmu aħjar il-qagħda lingwistika tant rikka fil-gzejjer żgħar tagħna. Għax dawn l-ilhna jsawru holqa f'katina li tixhed li, għalkemm minn fuqhom m'għaddewx aktar minn ħamsin sena, il-hsejjes, ir-rakkonti, l-għerf u d-drawwiet li fihom inewlulna pinzellati minn ħajja li m'ilha xejn imma ilha ħafna. 

*Min mar joqghod f'rahal iehor kien espost għal djalett differenti, u t-tfal bdew imorru l-iskola u jitgħallmu l-Malti standard, 'il-pulit', sajjem minn xi karatteristiċi li jżewqu t-taħdit.*

Tista' tisma' kampjun tar-registrazzjonijiet diġitalizzati tal-Prof. Aquilina billi tiskenja l-kodiċijiet QR t'hawn taht.



L-Għasri - 1964-1969



L-Għarb - 1977



Iz-Żurrieq - 1966



Is-Siġġiewi - 1977

# ZOOMing out



*The COVID-19 virus has had a profound impact in the way in which our lives are led. The widespread global adoption of remote workplaces and classrooms has introduced us to a new way of life. The question is whether the adoption of this new norm will continue in years following the pandemic. To answer that, **David Mizzi** takes a look at the nature of work and what the *raison d'être* of pursuing tertiary education is.*

Twelve thousand years ago humanity started shifting from hunting and gathering to agriculture. The way we lived changed completely. Fast forward a few millennia and we see a shift

towards feudalism. A few millennia later we had the Industrial revolution and now a technological one. Are we on the brink of a new revolution?

The way we live, work, learn, and play have taken on a totally different dimension. We warn our family members or housemates that we're going to be on a call. We schedule our meals around online meetings. This pandemic has digitized the way we interact with the outside world and has brought each and everyone of us closer to becoming virtual citizens.

The constant use of technology, whether through the use of spellchecker, listening to music online, interaction with others through zoom, facetime, or online research have made us dependent on a lifestyle embedded with a technologically interactive presence. Our educational systems need to move with the times and embrace the use of technology so that they may empower the workers of tomorrow.

### **A NEW WAY OF LEARNING**

The way we live, work, learn, and play have taken on a totally different dimension. We warn our family members or housemates that we're going to be on a call. We schedule our meals around online meetings.

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Lecturing is more nuanced than simply talking about a topic. It involves adjusting the content to your audience, making it relatable. Likewise, we cannot simply record a lecture and call it online learning. According to the "Surveys of Assessment, Learning and Teaching" (SALT), which aims to document students, administrative, and technical staff personal work experience during the first months of the COVID-19 pandemic, 66% of students reported that they were generally dissatisfied with the shift to online. While students were happy that 'lecturers were always accessible through emails or zoom meetings,' the problems seem to stem from the actual pedagogical strategies used. In some cases, lecturers 'did not even attempt to hold any online tutorials and just uploaded the slides online with [a] question form if we have any difficulties.' A ▶



**Dr Sarah Grech**  
*Photo by James Moffett*

student highlighted the fact that the main issue was the absence of 'a standardised format for virtual learning.'

There are many teaching methods. There is classroom teaching (with a range of pedagogical strategies), online teaching (with many potential approaches), and hybrid/blended learning. While some students and lecturers prefer face-to-face learning, others found online lectures/tutorials to be more productive. Digital learning can address a completely different range of students and academics. Several academics consider blended learning to be a more effective pedagogy.

Given the results of the SALT survey, it seems rather silly to limit ourselves to just one type of teaching. Diversity is key. Are we, as a society, ready to make this leap?

## **A NEW SOCIETY**

Online learning goes hand in hand with working remotely. What is the point of encouraging hybrid or online learning if workplaces are not ready to adopt remote work? The digital nomad lifestyle has been growing more and more popular, and companies have started to recognise the advantages that remote work offers. Students (as well as educators) should be taught how to make full use of our technological inventory.

For Dr Anne Marie Thake, Head of the Public Policy Department (UM), COVID-19 has forced us to reconsider work practices. This is not only a challenge but also an opportunity. 'We have seen elements of greater flexibility, less traffic, and less wastage of time which have contributed to a greener environment.'

For most companies, employers are used to having employees on-site, managed and monitored by time and attendance. Thake points out that there now needs to be a change in mindset – in the shift of physical location and time boundaries. The employer focus would be on the deliverables and not the process. The relations between employer and employee would change. There would need to be mutual trust. These are new dynamics that would need to crystallise.

Grech invites us to take a look at North European societies, which encourage a healthy work/life balance. 'If this is the type of society we wish to work towards – one which values its citizens on an individual level – our educational system also needs to promote this work/life balance.'

Staying focused can be hard for students working from home. They miss the social aspect of university, while others find it hard to distinguish between their private and work life. Commuting can help us differentiate between these two aspects of our lives; however, it is not the only way. We can adopt new habits to help distinguish between our private and public life.

Just as studying at university helps us to conduct research, design presentations, practice teamwork, and adhere to deadlines (all skills which are highly valued in the workplace) – the workforce of tomorrow needs to be able to work remotely and, more importantly, be able to differentiate between their public and private life.

Our educational institutions should be preparing our students for the world of work, right?





**Dr Anne Marie Thake**  
*Photo by James Moffett*

*Let not the university be a glorified post-secondary school, where learning is about instruction. It needs to be at the forefront, spearheading new trends, so [that] the public and private sectors follow.*

## A NEW UNIVERSITY

Are universities meant to train tomorrow's workforce, or are they there to develop the nation's critical thinkers? Perhaps some students do not study to find employment but study for the sake of knowledge. Or is it, to quote a student, 'to learn to be more independent. To conduct research and learn from professionals on how to be a professional.'

Another student remarked, 'I don't know how to pay my taxes. While university has taught me how to work in an organisation, it helped me develop social skills and [has] given me the opportunity to earn an academic degree. I feel there is a difference between real life and university.'

For many, university degrees are considered a gateway into the job market rather than an opportunity for learning life values. Some employers might feel that they are entitled to a say in educational policy-making even though they are passive consumers of the education system.

They show an interest in courses that will create relevant work-ready graduates. Yet employers also need people who can think critically if they are to remain relevant and competent in an ever-changing landscape. As Thake eloquently put it, 'Let not the university be a glorified post-secondary school, where learning is about instruction. It needs to be at the forefront, spearheading new trends, so [that] the public and private sectors follow.'

Yet, initially, it seems that the private sector has adapted most to new ways of working — flexible hours, remote working options, and cultivating a different mode of working.

A well-rounded education means understanding the nuances of modern society. It means understanding the economy, politics, social systems, and the international scene — how our choices affect the bigger picture. A university is not just meant to give you the technical skills to complete a job that will be obsolete in 20 years or that will bore you in 10. A university is meant to cultivate your mental capacity to see, decipher, and improve the world around you. And if that means making a conscious choice to work and study remotely, then so be it. **T**

### Further reading:

**Ministry For Education and Employment. (2017). The State of Digital Education. Engaging with Connected, Blended and Open Learning, from [https://education.gov.mt/en/digitaleducation/Documents/conference\\_magazine.pdf](https://education.gov.mt/en/digitaleducation/Documents/conference_magazine.pdf)**

**Public Sector Telework Trends During the Coronavirus Pandemic | IPMA-HR. [ipma-hr.org](https://www.ipma-hr.org). (2020). Retrieved 2 November 2020, from <https://www.ipma-hr.org/stay-informed/hr-news-issues/hr-news-article/public-sector-telework-trends-during-the-coronavirus-pandemic>.**

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# ARTWORK ON STRIKE!

# Museums: Keepers of the Past and Pioneers of the Future

*Museums are a portal into the past. To create a sustainable future demand understanding and learning from this past. From Art Strikes to Biomimicry, **Dr Sandro Debono** explains how many modern museums are taking a more active role in shaping the way our future unfolds.*


**M**y museum and curatorial practice have always been informed by theory and hands-on practice. Thinking through problems to find appropriate solutions informs my practice throughout, and recent circumstances have made me aware that this has become a highly sought-after skill. The COVID-19 pandemic can be seen as a negative disruptor. I prefer, instead, to consider the silver lining whereby the pandemic becomes an accelerator for change. The silver lining is for that potential for change to happen in significant and tangible ways – which is where museums come into the picture.

We rarely think about museums as public spaces where collections become resources that inform discussions and rethinks of long-established narratives and perspectives oftentimes considered by many as cast in stone. The museum is often understood as a tangible metaphor or a stereotypical idea rather than a response to the needs of a particular ecology to which it relates and responds to.

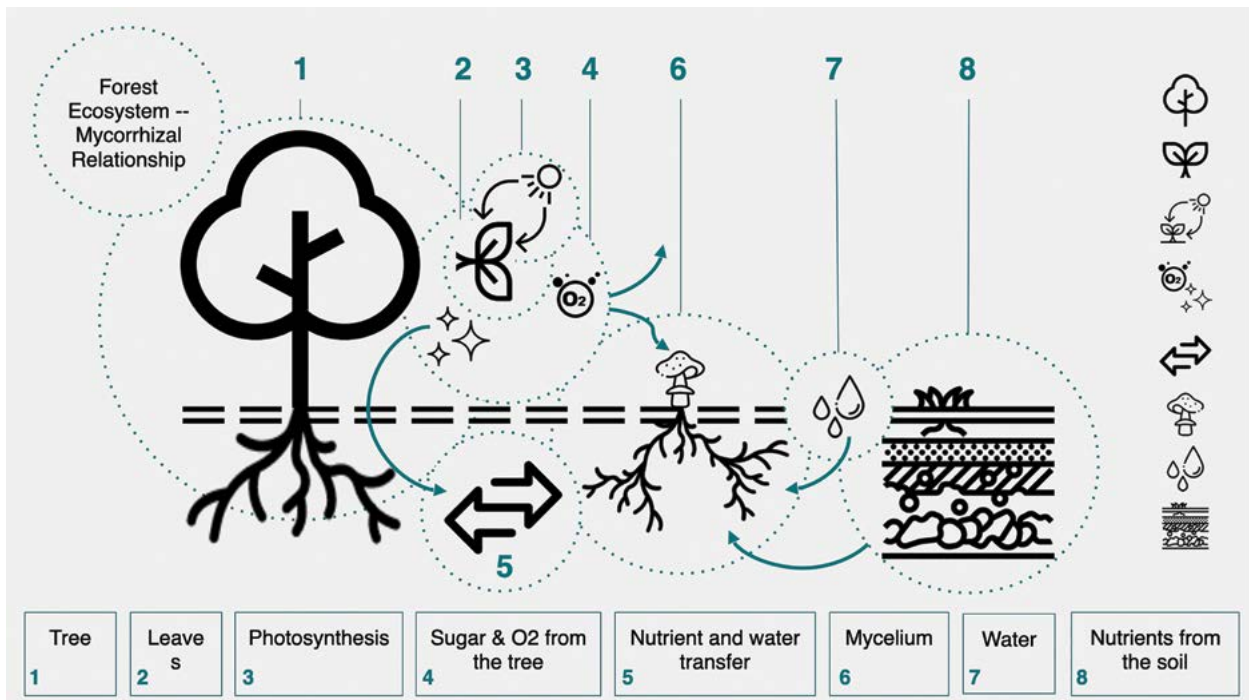
At the other end of the spectrum, climate action has been on the national agenda in fits and starts, with the country now unveiling an ambitious climate action plan to achieve net-zero emissions over three decades. Perhaps the most symbolic action is the unanimous declaration of a climate emergency by Malta's national parliament in 2019. The reduction of greenhouse gases and extensive use of renewable energy resources has been on the national agenda for close to a decade or so. There is no question that Malta will be impacted in one way or another

through rising sea levels and other effects. There is much that needs to be done, and the willingness to address this ever-pressing challenge requires increased awareness and outreach. Museums and climate action are far from being dissonant, disconnected voices. Indeed, one can become the voice of the other in meaningful ways.

## CLIMATE ACTION ADVOCACY

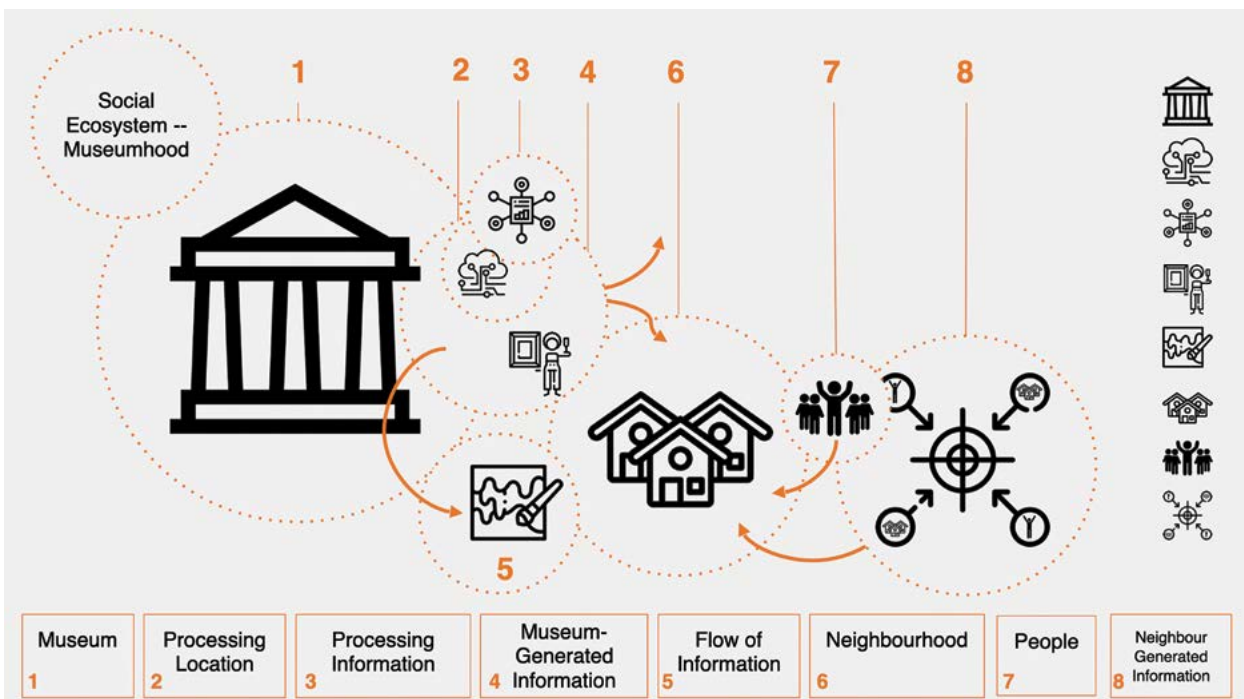
Museums have a voice. They also have things to say that are equally relevant to the present as much as they are to the past. One of these pressing matters, temporarily displaced to the shade of the COVID-19 pandemic, is climate change and the ever-more-pressing need for action. The obvious choice of institutions to take action would be science and natural history museums. Indeed, the International Committee for Museums and Collections of Natural History (part of the International Council of Museums), has been exploring ways and means to stimulate conversations about climate change. The international museum landscape has welcomed new museums dedicated to climate change in Hong Kong (Jockey Club Museum of Climate Change), Germany (Klimahaus 8°), China (Low-Carbon Science and Technology Museum) and Oslo (Klimahuset) since 2013. The entire international museum landscape has been active on this issue for quite some time. An ever-increasing number of museums have featured climate change in their public programming, and some are joining forces more than ever before. One example is the Coalition of 





⤴ Biomimicry is the emulation of the models, systems, and elements of nature for the purpose of solving complex human problems.

⤵ The symbiotic relationships found in the forest ecosystem can help to inspire the next level of museums.





The Victoria and Albert Museum took things one step further, it partnered with Extinction Rebellion

Museums for Climate Justice, mobilising Canadian museum workers and their organisations to develop public awareness, mitigation, and resilience in the face of climate change.

Last year, the Museums for Future movement was launched. It is a global collection of museum workers, cultural heritage professionals, and many others in support of Greta Thunberg's Fridays For Future Movement.

Museums can be both advocates and activists. One particular action hitting the headlines, also promoted by Museums for Future, is the art strike. This works by museums covering artworks on environmental subjects or themes for a day. The platform has a toolkit to guide and support institutions interested in calling art strikes. The Victoria and Albert Museum took things one step further. It partnered with Extinction Rebellion, the activist group calling for urgent climate action, to present exhibitions featuring material culture created for the purpose of protest. Since then, the museum has acquired artefacts produced for the purpose of protest, comparing the visual impact of the group's campaigns to that of the suffragettes.

## THE ENVIRONMENT AS MENTOR

Protests have a flipside. Museums can become more aligned to natural processes. Museums can reduce their carbon footprint. Another step is to recycle and use eco-friendly materials in exhibition displays. Aligning museum institutions and their role in contemporary societies as public spaces is where biomimicry thinking comes into the picture.

Biomimicry is an approach to innovation informed by adopting strategies found in nature for the purpose of developing sustainable solutions to human challenges. Janine Benyus' book *Biomimicry*:

*Innovation Inspired by Nature* (1997) popularised this thinking. For biomimicry, innovation is informed by the natural world, leading to rethinking workings, management models, programming, and outreach. It is about the willingness to shift from 'how might we' to 'how would nature' do it in order to understand the underlying principles of nature for museums to create symbiotic relationships with their neighbours.

Biomimicry thinking can inspire museums to adapt, rethink, and reinvent themselves. Biomimicry can help museums understand the ecosystem they exist in and how it differs from nature. The institution would also need to translate science-driven and nature-informed biological data into design principles. Impact and sustainability would need to shift from the yardstick of efficiency and numbers, to the extent of systemic innovation introduced and the impactful change it has on the museum.

By looking closely at natural ecosystems, we can reinvigorate and reimagine the way museums operate, expanding their outreach and engagement in sustainable and innovative ways. **T**

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When working with cutting-edge technology, learning opportunities are abundant. **Carlos Sanchez**, a Masters student at the University of Malta, worked closely with IBM on an exciting new project which can help AI better understand language. THINK reached out to Carlos to find out more about his experience working for a global company. By **Aditi Desai**.

Language is an instrument for human connection and emotion as much as it is responsible for relaying information. It's multiterred, complex in sound and meaning, and comes in many flavors. Through technology, languages are no longer linguistic barriers; instead we are able to speak in one language and be understood in another. Computerised technologies face a tall task to accurately understand, synthesise, and interpret human language and communication.

Students need the practical and invaluable experience that comes from collaborating with large scale companies. IBM is a pioneer in the field of linguistic technology and artificial intelligence (AI). As companies research novel systems to make computerised languages representative of human communication, collaborating with students is essential in providing them with opportunities to work on real-world problems.

IBM, a leader in AI for business and a recent developer for language and communication technologies is bridging the divide between education and professional workplaces. This technological powerhouse has been collaborating with university students to identify, understand, and analyse some of the most challenging aspects of linguistics.

MSc student Carlos Diez Sanchez was participating in the Erasmus Mundus European Master's Program in Language and Communication Technologies when he [▶](#)



*'The most valuable process is working alongside others, gaining perspective, and excavating for ideas.'*

collaborated with IBM. 'IBM had a project where they were trying to capture semantic actions in different languages,' Sanchez explains. 'But their resources were in the process of development, so I was brought on to the team to create methods and evaluate current resources.'

He started in early 2016 when Dr Lonke van der Plas from the Institute of Linguistics and Language Technology (University of Malta [UM]) was contacted by a researcher at the IBM Almaden Research Center (US). Afterwards, the two teams combined efforts and began working on technology for multilingual semantic role labeling, a technology used to measure accuracy in different languages.

### **FROM STUDENT TO RESEARCH APPRENTICE**

Working with a company as reputable as IBM can be daunting. Searching for the right resources and tools to navigate professional environments for the first time can induce fear. Yet doing this as a student prior to entering the



workforce can both launch a person's professional career and spark a love for a field. For Sanchez, the collaboration and mentorship with IBM was highly cherished. He was eager to get started with the collaborative process, engage team members, and extend his knowledge beyond academia.

'For most of my life, I've been obsessed with learning languages,' says Sanchez. The intricacies, slight differences, and power of all languages feels intimate — something he strives to learn and absorb. 'My time with IBM only drove my interest further and created a career out of a passion.'

When the opportunity to work on a joint patent for a linguistic technology with IBM arose, Sanchez was quick to dive in. According to Sanchez, though all collaborative endeavors offer students the potential to grow as both learners and societal contributors, understanding the values of a company can be a good check point. After a few days working with IBM leadership, Sanchez recalls thinking that 'everyone was professional in their interactions.' Moreover, 'they [the IBM researchers]


embodied a true sense of research, instead of just trying to automate or reduce research processes.'

A typical day working with IBM did not exist for Sanchez. While researching semantic action in languages took up the majority of some days, other weeks were filled with presentations and team meetings. The weekly meetings were gruelling but rewarding. Carlos recalled that 'I was presenting results all the time. At the same time, I was taking the feedback [given by IBM team members] and running tests to improve results, make changes, and modify systems.'

Though presenting research and results to professionals can be intimidating, Sanchez recalls the immense support he received from his own team in Malta and collaborators from IBM. 'They helped me revise my results and present in the best, most professional way possible. I wouldn't say I was fearful when presenting. I'm sure I made many mistakes when presenting, but this was also a part of the research process.'

Deepening student involvement with professionals must be a core

goal of colleges and higher education institutions. Not only do students learn to balance academics with collaboration and communication, but they develop pride and confidence in their contributions to society. 'Even if you might not end up working at that company, you take away something a lot greater,' says Sanchez. 'The most valuable process is working alongside others, gaining perspective, and excavating for ideas.'

In an ideal world, all students would have the opportunity to seek mentorship and gain real-world experience to add depth to and enrich their university years. These collaborations should not be viewed as external partnerships, but rather extensions of education and academic learning. Collaborative endeavors, much like Sanchez's experience with IBM, must be a priority on our society's educational agenda. Such opportunities broaden the scope, widen classrooms, and empower students with the ability to take charge of their passions and wield education as a tool to invest in societal advancement. 



# How DNA can improve Biodiversity Knowledge and Conservation

*Every ecosystem is composed of a community of organisms alongside their physical environment. In order to better understand these ecosystems, conservation biologists from the Department of Biology, University of Malta (UM) have begun compiling a wildlife DNA barcode library that can help understand our local wildlife and give us the tools to protect it. Words by Dr Noel Vella.*

Healthy, natural environments benefit human wellbeing. The billions of living organisms, ranging from minute microbes to colossal whales, are still being biologically understood through research and appreciated for

their contribution to life on Earth and our survival.

The natural balance and stability of different ecosystems, each composed of a rich biological diversity of organisms intricately networking to sustain the complex processes of life, has unfortunately been altered by mankind. There is a pressing need to discover the composition of such biodiversity through accurate identification of each species. Without such data, scientists, governments, and managers of natural resources cannot safeguard ecosystems as effectively and holistically.

## A LIVING RECORD

Building sustainable futures requires a basis of concrete knowledge about what, how, and where species are declining in numbers and affecting ecosystem health. Luckily, this has been picking up research momentum in the Maltese Islands.

Genetic investigative tools are being developed to study wild species and their populations at local, Mediterranean, and global scales. Such work has been applied to numerous groups of marine, freshwater, and terrestrial organisms, including: bluefin tuna, sharks, dolphins, turtles, freshwater crabs, bees and other insects, molluscs, and various other species, including alien organisms found on or around the

Maltese Islands. Wild species and habitats provide goods and services and contribute to our natural capital and our economic well-being. Yet habitat fragmentation, pollution, climate change, alien introductions, and the exploitation of resources are crippling Maltese biodiversity.

The increasing pressure to preserve biodiversity by 2020 from local to global scale promotes the necessity of species and population-specific conservation research. Several taxa (the ranking of organisms, such as a species, family, or class) remain poorly known or inaccurately identified. This makes conservation difficult or even impossible, as management systems and conservation managers cannot effectively conserve what is unknown. The research project BioCon\_Innovate, already well underway, is expanding the digital library of several species from the Maltese Islands, revealing vital knowledge of local to regional genetic diversity.

By assigning species-specific genetic sequences to various known taxa, genetic data has the potential of identifying new local species, subspecies, or stocks. This is very similar to identifying any supermarket item through its barcode. Each item's barcode would carry important information, from its cost to its product details. Similarly, a specific DNA sequence found to supply a species' unique genetic identification may be used to barcode the diverse species on Earth. This part of the study will help expand Maltese wildlife knowledge, which will allow more accurate monitoring strategies to be developed. Additionally, the uploading of local genetic data



**Ghajn Tuffieha Bay  
Biodiversity Conservation Area**  
*Courtesy of Adriana Vella*



**Prof. Adriana Vella**

onto international genetic databases makes it available for further biodiversity analyses and management, both locally and internationally, giving local studies a multinational dimension.

BioCon\_Innovate also focuses on the development of an Environmental DNA (eDNA) platform that would link field sampling from different natural environments with local reference DNA sequences. Identification of organisms through eDNA ensures a record of the presence of different species, the extent of biodiversity, and the association between groups of organisms in each environment, without the need to actually sample specimens of each species or population. This rapid and accurate molecular protocol

for the identification of local biodiversity increases the efficiency with which the different habitats or natural environments are assessed and monitored. This is possible after detailed genetic studies have been run on each species found in each of the different habitats or ecosystems.

With financial support from the BioCon\_Innovate Award Fund and the Environment and Resources Authority, ERA, Malta Fund, the research group was able to conduct an in-depth conservation project. After investigating the freshwater crab's genetic population structure and genetic diversity in its local fragmented distribution, it becomes possible to select useful genetic markers to detect its presence in an environment. By identifying the organism through eDNA, it becomes possible to detect them by analysing DNA from freshwater samples in habitats where this species is being monitored or sought. Another useful example is the utilisation of eDNA analyses for timely detection of specific alien pests in our countryside or marine coastal environments.

### **A LOCAL PROJECT WITH GLOBAL APPLICATIONS**

BioCon\_Innovate's objectives and applications are tightly linked to the actions and goals set by the EU Biodiversity Strategy 2020. The ongoing overexploitation of natural resources, impoverishment of biodiversity, and environmental degradation concern everyone from biodiversity managers and conservation biologists, to policy [▶](#)





Geckos  
Courtesy of Adriana Vella

*'It is time to fix our broken relationship with nature. Climate change, loss of biodiversity, and the spread of devastating pandemics demand it.'*

makers, stakeholders, service-users, and economists. Malta has legal obligations to reach targets listed in the EU's strategy. It also has its own legal framework and legislation aimed at the protection of biodiversity through various Flora, Fauna and Natural Habitats Protection Regulations, the Fisheries Conservation and Management Act, and the National Biodiversity Strategy and Action Plan.

The Conservation Biology Research Group (CBRG-UM) led by Prof. Adriana Vella has been at the forefront in promoting diverse molecular genetic techniques to address biodiversity assessment and management. This specialised research laboratory has built the capacity and human resources which will increasingly be necessary for Malta's sustainable economic and environmental development plans. Through such constant search for innovation in the field of conservation, the CBRG-UM has applied for the UM's Fund for Excellence in Research by presenting the BioCon\_Innovate project, which was selected from among all the life science applications of the University of Malta. It is positive to note that all applications were scrutinised by external assessors. A

As this year has arrived with additional environmental, biodiversity, and health related problems, the EU is now pushing forward for recovery of the EU Biodiversity Strategy for 2030 as

*'It is time to fix our broken relationship with nature. Climate change, loss of biodiversity, and the spread of devastating pandemics demand it.'*

European and Maltese ecosystems are facing serious degradation, fragmentation, over-exploitation, and impoverishment. This, coupled with the increasing population density of the Maltese Islands have urged the Maltese National Biodiversity Strategy and Action Plan to set clear goals for the near future. This includes listing the considerations and protection of genetic resources and diversity, followed by species and habitats conservation and the prevention of alien biological introductions, among other things.

Being able to detect the presence of diverse species in different natural environments is extremely useful in monitoring





**Freshwater Crab**  
Courtesy of Adriana Vella

wild species, including elusive, nocturnal or alien species that may be hard to spot. Utilising the most innovative analytical methods allows for efficient detection of these changes, paving the way to timely mitigation and useful management measures, slowing or stopping the negative repercussions of native species loss or the invasiveness of alien species.

## **PROMOTING AWARENESS AND TRAINING IN MALTA**

The UM, through the CBRG-UM led by Prof. Adriana Vella, convened the first Genomic Biodiversity Knowledge for Resilient Ecosystems (G-BIKE) COST Action training school. This unique training school allowed local and foreign conservation managers, practitioners, policy-makers, and researchers to gain insights in useful investigative genomic tools and their outputs for improving the effectiveness of conservation monitoring and management of wild plants and animals, as well as diverse habitats and ecosystems.

Innovative tools to achieve these targets accurately, efficiently, and with minimal disturbance to species and habitats also involve molecular genetics and genomics techniques. Thus allowing the DNA of any species, population and specimen to shed light on otherwise inaccessible information about the genetic identity, resilience and adaptation of organisms in a changing natural environment, also affected by anthropogenic activities, is essential.

Together with Vella's contribution to the G-BIKE training school, there were ten other international experts from Europe and the USA that have worked on diverse ecosystems and considered different plant and animal species. The latest developments in the use and application of molecular

genetic techniques were explored considering the specific backgrounds of the participants and their needs with regards to upgrading their skills as conservation practitioners. **T**

**BioCon\_Innovate is funded by the University of Malta's Fund for Excellence in Research.**

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# MALTA'S PAGANISM: A dance between Archaeology and Anthropology

Author: Dr Dawn Adrienne Saliba

*The prehistoric Megalithic Temples found around Malta were once home to an ancient civilization. We have no records of how their spirituality was practised—only limited archaeological evidence. However, conducting an anthropological study of contemporary Neopagan communities may provide insight into the rituals of these mysterious people.*

Many are surprised to learn that there are Neopagan communities scattered throughout Malta, many of whom look to the Neolithic past as a source of inspiration.

It is important to first clarify what Paganism is. To begin, it is not an organised religion: beliefs of individual practitioners vary widely. As in Buddhism, adherents may also be Roman Catholic, Jewish, atheist, and so on. Some Neopagans believe in pantheons of deities; others are agnostic practitioners who only consider 'gods' to be symbolic archetypes. Similar to shamanism, Pagan practices often involve trance-evoking meditation, music, and movement. There is no set hierarchy or dogma. Rituals are as varied as the organisers' talents.

## MALTESE PAGAN HISTORY

Paganism has a rich history on the Maltese islands. From 5,900–2,500 BCE, Malta's Late Neolithic Civilization created a rich cosmology, as evidenced by the temples and artefacts left behind. Later, Bronze Age visitors, Phoenicians, and Romans who settled in Malta also brought with them their own Pagan gods, goddesses, practices, and beliefs.

Throughout the early modern era, undercurrents of Paganism were retained, even if practitioners were monotheistic. One Muslim slave, Sellem bin al-Sheikh Mansur, was imprisoned by the Roman Inquisition for practising geomancy (a form of divination). His student, Vittorio Cassar, a Knight of the Order of St. John, also suffered run-ins with the Inquisition for fortune telling. Today, an exhibit at the Grand Inquisitor's Palace showcases

'magical spells' from this era, including one inscribed upon a paper hat for headaches. Two-hundred years later, Grognet de Vassé, architect of the Mosta Dome (and proponent of the Malta-as-Atlantis hypothesis), modelled its structure on the Pantheon of Rome, a once-renowned Pagan site.

In the 1920's, archaeologist Margaret Murray visited Malta to excavate while authoring a text that became a foundation for modern Paganism. She argued that a cult in Europe worshipping a female goddess and male god had been present since prehistoric times. Anthropologist Gerald Gardner built upon her work and in the 1930's spread the new philosophy of 'Wicca', a spirituality incorporating worship of feminine and masculine deities. His influential 1954 book forms the bedrock of today's Neopaganism, which later reached Malta's shores by the 1970's. In the 1990's, Starhawk pushed the practice towards ecofeminism, and Scott Cunningham presented Wicca as a paradigm of radical modernity. Concurrently, Marija Gimbutas popularised Malta as a site of ancient goddess worship. Today, this 21<sup>st</sup> century progressive ideology attracts many, and the temple sites of Malta are still a Mecca for the movement.

## THE FEMININE DIVINE

For many Maltese Neopagans, their relationship to Malta's prehistory is intimately tied to the era's famed statues, often considered embodiments of a primeval Earth Mother or 'The Goddess'. Today's altars often highlight Neolithic figurines such as 'The Venus of Malta' or 'The Skorba Goddess', placed there as evocations of the ancient past. Such presentation of



sacral objects may reflect rites from millennia past.

Honouring this feminine-divine, especially as 'Gaia', the embodiment of nature, is an element that binds many of the tribe together. Kirsten Saliba notes in her 2018 ethnography of Malta's Neopagans, such worship empowers women 'to look at themselves as divine, their bodies as sacred, and the evolving phases throughout their lives as holy'. As Anna, one Neopagan states: 'She is the land itself; Malta itself; climate itself'. Men, too, have found the worship of 'The Goddess' to be a source of inspiration. Adam believes that 'She restores something that has been robbed from us in the West, and returns a wholeness to the broken worldview that we have inherited'.

### NEOLITHIC INSPIRED RITUALS

Today, Maltese Pagans often enter the ancient structures in an effort to experience transcendence. For Adam, walking amidst the temples in bare feet is a recognition that we tread upon holy ground. When Steve enters a site, he 'connects' with stones to render the barrier between the material and spiritual worlds 'porous'. His partner, Br'er expresses similar sanctity. For him, the juxtaposition of unchanging rock with the ever-changing soil is a dance.

In 1990, Veen, a cultural anthropologist, collected such historical accounts of rituals. She documents those at the Stone of Qala in Gozo, where women who wished to become pregnant encircled and sat upon the megalith.

Today, this stone is still a focal point for Neopagans. In a recent ceremony, broad beans were placed around the stone, a homage to the legendary Maltese giantess who was believed to have lived off such beans. Such rites may echo the prehistoric past, where excavations have shown possible food offerings at the temple sites.

The enigmatic spiral is characteristic of the Maltese Neolithic, and many Maltese Neopagans still resonate with the symbol. Adam recounts how within the Hypogeum, a water droplet once significantly fell in the middle of his forehead, so he traced a spiral with it. For Aiden, the shape represents the 'eternal cycle'. For Celaeno, it is the dance between life and death.

The spiral also forms a basis for sacred dance. During Samhain (the Pagan celebration that falls near Halloween), Anna, Ivy, and Celaeno all participated in a joyful, impromptu 'widdershins' around a bonfire. Perhaps such movements are similar to those practised by the ancient Maltese.

### FIGHTING STIGMA

Although Malta's Pagan communities are growing, there are challenges. Adam argues that accessibility is needed for those who wish to worship within the ➤



Musical instruments can play an active role during certain rituals  
Photos by James Moffett and Sarah Zammit





## Below are a few basic principles most Neopagans adhere to:

- Worshipping the natural world and fostering an eco-conscious lifestyle.
- Incorporating feminism in ideas regarding divinity.
- Valuing wellness of body, spirit, and mind.
- Empowering community members through 'magical' modalities, such as the creative arts.
- Striving towards political justice regarding issues of race, gender, and orientation.

**Top right: Entrance to Haġar Qim**

**Bottom right: Meditation during sunset at Haġar Qim**

**Photos by James Moffett and Sarah Zammit**

ancient temples. 'The spiritual approach shouldn't be seen as fringe, but as a valid way of approaching these sites.'

Others feel stigmatised by misinformed beliefs that they are a cult, out of touch with reality, or 'follow the devil'. Several live in fear of such judgment.

Ivy and Aiden both expressed experiences of castigation. Ivy's parents, upon discovering some jewellery with pentacles and moons, became convinced that their daughter was worshipping Satan. They couldn't understand that she simply worshipped nature. Likewise, Aiden described waking from nightmares where Pagans were persecuted by modern day forces.


A few years ago, a Mater Dei Hospital nurse accused an expectant Pagan mother of being a 'Satanist' after seeing her pentacle tattoo. They called in a priest to 'bless' the areas of the hospital that the patient had 'contaminated'. As Rountree noted in 2016, such antiquated thinking is 'evocative of eighteenth-century witch-hunts' and leaves Malta's Neopagans vulnerable. Sarah makes the emphatic argument that acceptance is needed. As she extolls, 'We are good people.'

### PAGAN ACTIVISM

Maltese Pagans are also deeply upset by reckless environmental and archaeological destruction. Some wishing to protest against the over-development and commercialization of ancient landscapes formed *Malta ARCH*. In 2017, they rallied around the battle to save Tal-Qares, a Roman site. One member created an installation featuring a supermarket shelf of rusting cans etched with Neolithic symbols to signify its devastation:

Although they lost the battle to save Tal-Qares, they did win a significant victory protecting the archaeological site of Tal-Wej from development. This ignited the hope in many of becoming a political force, one born of a subversive 'Spiritual Revolution'.

### THE FUTURE

Although there are some profound differences between competing Maltese Neopagan groups, they are all united in their wish to empower their community and create safe, inclusive spaces. Crucially, they teach acceptance and respect for all humanity—particularly the marginalised—through their creative, eco-friendly, and female-centric practice. All want the acceptance and respect that their Northern European counterparts enjoy—and they deserve it. 

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*Names have been changed.*



# Let's not panic about our teens just yet





The benefits of research can be lost if we amplify only one argument in a nuanced, complex topic. How youth interact with social media is as complex as it gets. **Dr Velislava Hillman**, director and senior researcher at Data, Media, and Society Research Centre, Malta, writes.

The COVID-19 pandemic kept many children and teenagers at home, with parents struggling to recreate routine. Yet with or without public health risks, teenagers' social media use was shrouded in moral panic and gloom.

Mainstream media headlines do not help; take *'Social Media Creates 'Instant Loneliness' for teenagers'* and *'Loneliness: An Epidemic In The Making?'*. All too often research and policy looks at risks separately from opportunities.

In Malta, this division happens often. Run-of-the-mill surveys bring out numbers without context. Left in the hands of hungry news writers, these numbers can lead to uncontrolled and wild interpretations that raise unnecessary fear in readers. The truth is that there is no clear evidence of any causal relationship between loneliness and social media use. Young people – and many adults too – do feel social or emotional loneliness, but the real reasons remain elusive. To give a more balanced approach to social-media-induced loneliness among teenagers, here are five questions to ask before allowing any concern to seep in.

Firstly, what's the evidence? Comparing the findings of a quantitative study on loneliness carried out by the faculty of Social Wellbeing at University of Malta and its coverage in the mainstream media, the gap is striking. There is no solid proof that teenagers suffer 'instant' loneliness, let

alone that social media causes it. The study found that loneliness tends to particularly affect older people with lower education, unemployed and retired individuals, and those living alone (a bit of a giveaway), among other factors. A person's risk of loneliness, the study summarises, 'is reduced if they: form part of a younger age group; are highly educated; are in employment; are of a single marital status; live with their parent(s) or guardian(s)...' etc.

A third of the teenagers (ages 11–19) who took part in this survey said they experienced some sort of loneliness (with no connection to social media whatsoever). The survey (a method that has its own limitations) included 115 teenagers in total. While the research instrument has a unidimensional overall loneliness measure, it prevents researchers from understanding why the survey participants responded as they did – which may be a result of temporary bias (e.g. unique life events, having a stomach ache, or responding right after a fight with a friend).

The second question is: who is interpreting the results (researchers, journalists, parents, NGOs who need funding to carry out their work)? Mainstream media covered similar studies in the past (e.g. studies on youth and online gaming), as they make a compelling read even when evidence is inconclusive. But while the intention may be to create awareness, inflicting moral panics will not provide the support that is necessary in these situations. ➔



**Dr Velislava Hillman**

The third question to consider: when does feeling lonely become problematic? A headline such as ‘Loneliness: An Epidemic in the Making?’ sounds as though feeling lonely is somehow wrong. The referenced study by the Faculty for Social Wellbeing highlights that it is OK to feel lonely. And while presenting the number of people who said they feel ‘moderately lonely’, the findings do not make claims about the cause or length of such a feeling. Fourthly, are social media users seen as passive consumers or as complex individuals? Scary headlines of media articles (as quoted above) or books (like Jean Twenge’s *iGen: Why Today’s Super-Connected Kids Are Growing Up Less Rebellious, More Tolerant, Less Happy* or Adam Alter’s *Irresistible: The Rise of Addictive Technology and the Business of Keeping Us Hooked*) create a dangerous bandwagon. The media has been heavily criticised for construing children and young people as a passive audience of media messages, carried away by content that adults somehow seem immune to. However, children have their own moral compass; they detect liars like no other device can, and show resilience when faced with an adversary. Examples galore: from Pocahontas to Malala and Taylor Swift (with her support for LGBTQ rights and speaking up against sexual harassment).

Of course, accepting youth as ‘tech savvy’ is another extreme to avoid. The point is to not segregate audiences, grouping them as ‘addicted’ or ‘digital natives’ or ‘lonely’,

but to reveal all evidence with its accompanying limitations and drawbacks and to emphasise the nuances that exist among usage patterns, perspectives, and individuals.

Finally, what’s the point of creating moral panics? NGOs and mainstream media make every effort to create awareness, to help raise awareness of existing problems, and to make improvements in society. This is great. However, such work also relies on external funding – for selling shrinking newspapers, running educational and support programs, for conducting further research. Amplifying complex issues that are far from being clear-cut builds upon that same dangerous bandwagon. Generalising and turning survey responses into sensationalised headlines is never productive.

An average family will never spend a whole day reading academic work to understand what exactly has been discovered. All institutional actors, media, and stakeholders concerned about young people’s wellbeing should ensure a full display of the existing evidence and interpret it in a balanced way. And again, there is no causal relationship between loneliness and social media – the tool is not inherently harmful. [T](#)

**Further reading:**

**Azzopardi, A. (2019). Loneliness: an epidemic in the making?. Malta Independent.**

**Clark, M., Azzopardi, A., & Bonnici, J. (2019). The Prevalence of Loneliness in Malta: A nationally representative study of the Maltese population. The Faculty for Social Wellbeing, University of Malta.**

**Conneely, V. (2020). Social media creating 'instant loneliness' for teenagers. Times Of Malta.**

**Malala Fund | Working for a world where all girls can learn and lead. Malala.org. (2013).**

**Pocahontas: Beyond the Myth. Smithsonian Channel. (2020).**

**Zacharek, S., Dockterman, E., & Edwards, H. (2017). TIME Person of the Year 2017: The Silence Breakers. Time.com.**

## What should we do in these unprecedented times?

'Isolation, physical distancing, the closure of schools and workplaces are challenges that affect us, and it is natural to feel stress, anxiety, fear and loneliness at this time,' pointed out Hans Kluge, an important World Health Organisation expert. Instead of adding to the anxiety and fears about screen time, let's use this COVID-19 pandemic to explore the beneficial use of social and digital media.

### Some tips:



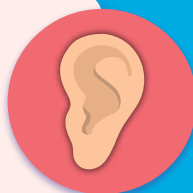
Enable discussions with young ones; learn together about the access to and spread of misinformation (misleading information) and disinformation (wrongfully given information with the intention to mislead and harm).

Find strategies for fact-checking and finding good quality information.

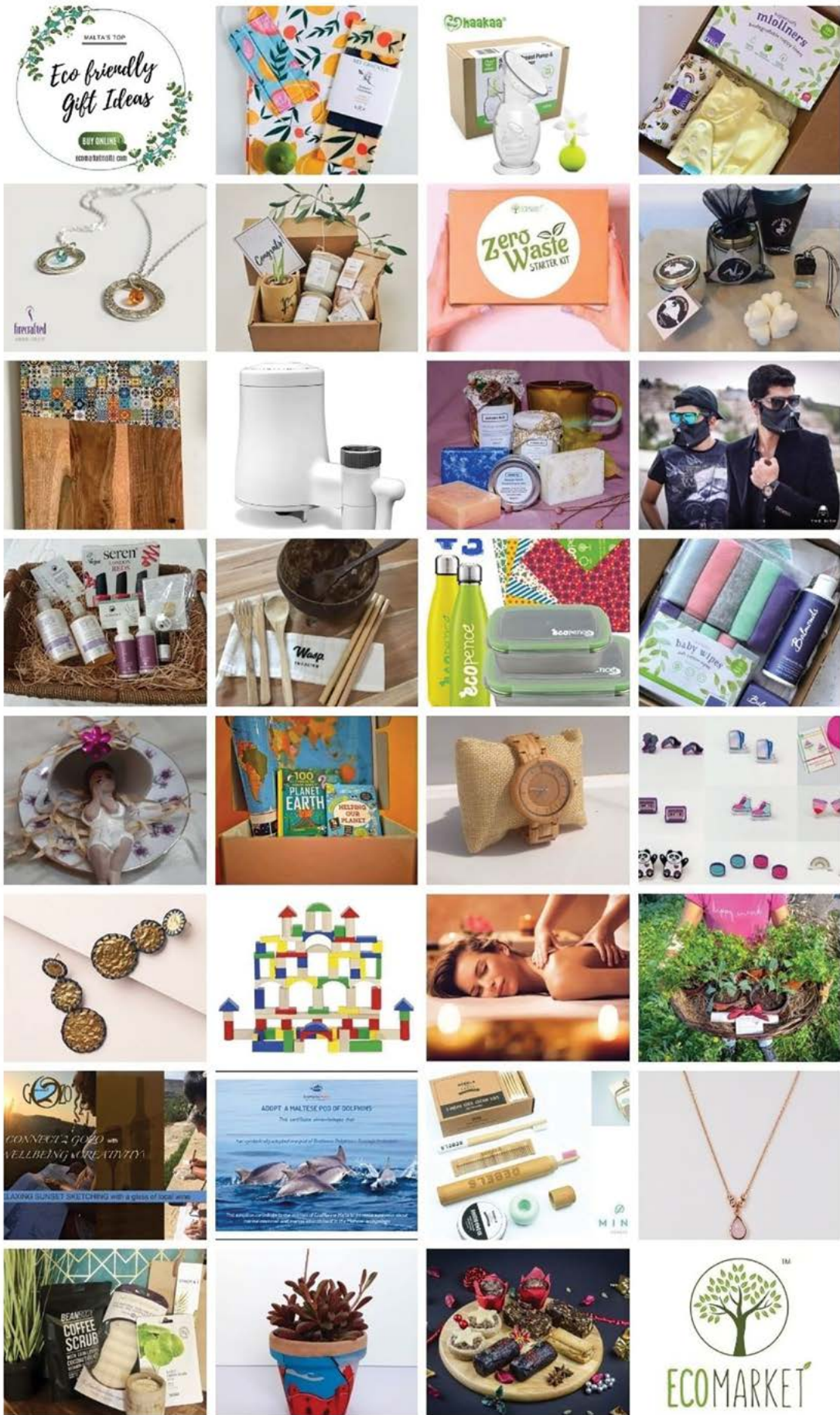


Connect with others and provide space for children and youths to enjoy their usual friendships, albeit digitally.

Listen to them with less judgement and critique. Instead, learn how they feel and what they use their digital technologies for.







**From Left to Right:** Bee Gracious, Bump and Me, The Cloth Nappy Co, Firecrafted, Mihome, Burlesque Candles, BonnyMia Art, TAPP Water Malta, Janora Blu, The Sith Crafter, Natural Health and Beauty, Wasp, Emporium, Ecopence, Unique Cribs, Malta Books - Independent Usborne Organiser, ByDyring, My Shoes Abroad, Alaria, Adrian Axisa, Green Fingers Club, Connect 2 Gozo, Eco Marine Malta, MINT Health, Rebels with a Cause, Vivi, Coach & I Lifestyle, Maltartigja, Anurakti.



# I'm Dreaming of a Green Christmas

*Cultivating a healthy planet requires us to shift from a consumerist mindset towards sustainability. Eco-sustainable gifts are a great way to spread Christmas cheer while promoting sustainability.*

By **Zen D'Amato Gautam**.

## CELEBRATING A 'GREEN' CHRISTMAS

Covid has taught us many valuable lessons. One of the most important is the need to live on a healthy planet with a healthy ecosystem. Climate change is real and caused by human action, as is biodiversity loss and air and sea pollution. All of these contribute to unsustainability. Everyone needs to be accountable for their own actions and habits. Christmas and New Year are traditionally the most ideal times to bring about change; that change could be living sustainably.

## CONSCIOUS CONSUMPTION

To be sustainable means to be able to maintain a balanced level of give and take. Right now, the planet is in an unsustainable state. We are currently using around 1.7 times what planet Earth can give. Overconsumption is a big player in this unsustainability and one of the forces driving the climate crisis. Many items are bought and consumed without thinking about a real need, especially during Christmas time. We are relentlessly driven into an over-consumption race with the excuse of gifting and celebrating.

Becoming a conscious consumer means that you put in thought and care before purchasing anything. Asking yourself questions such as: Where was this made? How did it arrive here? Who made it? Who or what suffered so that this product could be created? Celebrating a 'green' Christmas is possible when you choose eco-sustainable products. It means that the products were sourced, manufactured, produced, packaged, and transported with respect to the environment. An eco-friendly product is a product that was made with sustainability as a priority.

## WHAT IS GOOD FOR THE PLANET IS ALSO GOOD FOR PEOPLE

Eco-sustainable products are those products which provide environmental, social, and economic benefits while protecting public health and the environment over their whole life cycle. If you care about what you

put in your body and want to live a healthy lifestyle, choosing sustainable products is the way forward.

## CHOOSING ECO-SUSTAINABLE OPTIONS

This year can end on a good note. Let us start taking responsibility for our actions and choose ethical and sustainable gifts for our loved ones, taking inspiration from Malta's Top Eco-friendly Gift Ideas, a list created and curated by Eco Market Malta, a Social Enterprise advocating for UN Sustainable Development Goal #12; 'Responsible Production and Consumption'.

The list contains a beautiful and well-curated collection of gift ideas from local green start-ups, artisans, and small to medium enterprises. Shopping local is a huge factor for sustainability, as it reduces the product's carbon footprint. Many items are elegantly boxed but reduce plastic use, while others help people grow their own food, herbs, and flowers.

There are also several gift options for sustainable home appliances, such as jewellery, clothing, beauty, décor, wellness, children's toys, gifts for new parents, and unique original ideas such as 'adopt a dolphin'.

## BE THE CHANGE

Whether you are buying for an eco-conscious person or someone who is not yet environmentally aware, this list offers amazing gift ideas for everyone. As consumers, we can make a conscious choice to bring positive change into our lives, and since actions speak louder than words, your eco gift will also be a message inviting others to make their own positive impact. A meaningful and thoughtful gift can be more appreciated than a high-priced item. This year, let's choose to shop sustainably and responsibly, avoid waste, be kind to the planet, and enjoy a simple and 'green' Christmas. **T**

To view Malta's top Eco-friendly Gift Guide please visit: [ecomarketmalta.com](https://ecomarketmalta.com).

This article is sponsored by **EcoMarket Malta**.





# Construction BOOM!


*The goal of satire is not to mock, but to generate debate. By placing us in the role of the contractor, downloadable board game Construction BOOM! forces us to take a long hard look at the construction industry and wonder if it really is 'booming'. Words by **Sam Shingles & Bethany Wootton.***

Arriving in Malta this Summer from the UK, neither of us thought that our lives would become consumed by construction. The hammering of nails woke us up in the morning, while angry, beeping cars prevented us from much walking. Construction led to our apartment being flooded.

The culture shock hit us as we got off the plane. Malta lacks trees, has an intense sun, and its skyline is littered with cranes. Walking around showed the immense infrastructure being built. With time, we saw the construction industry's recklessness and how powerless many Maltese feel.

After a few months working at the University of Malta (UM) we learnt about the game Construction BOOM!, a two-player satirical tile-laying game on the construction industry, created by the Institute of Digital Games, UM.

Curious to find out if the game reflected our experience, we downloaded and printed a copy, then played a few rounds. The idea of the game is to get one over on your opponent, trying to undercut them with the promise of building cheaper and somewhat dubious structures, while the other player tries their best to tear them down. The game accurately reflected what we saw happening in Malta. To learn more about the game's origins we spoke to the game designers.

Stefano Gualeni and Jasper Schellekens created the game to channel their personal frustration. Jasper recounted with a smile, 'funny enough, while we were creating the game, the building we were in was set to be demolished!' The construction industry in Malta had come to them with its faults laid bare for all to see as construction workers bulldozed the building next door. 'We were yelling out of the window telling 



BOOM.GUA-LE-NI.COM

Game artwork depicting the design landscape of Malta



The game allows for buildings of all shapes and sizes, does this look familiar...



We even tried out the game! See if you can guess who was winning...



them to stop, but they said, "don't worry, don't worry!" Then they hit our building, which shook and cracked all of our walls,' Jasper describes, laughing at the absurdity of it all. He continues to recount how the construction also led to a burst water pipe 'spraying water all over the institute' with the construction workers 'almost surprised that these things were happening.' These experiences are in the game's artwork. The game might seem exaggerated, but the events it portrays are normal for many in Malta.

The game creators have personally experienced the negative impacts of the construction industry. Lives have sadly been lost due to building collapses in Malta. Many old, cultural buildings have been reduced to rubble. Construction BOOM! uses satire to echo these ideas. As Jasper highlights, satire is 'usually a tool used by people who feel powerless. In the local context, that is where we are coming from. We are not involved in the construction industry in any way, but we see it and are constantly impacted by it. Our perspective is that of powerlessness, the everyday citizen.' Yet, in the game, Stefano and Jasper have 'flipped the script' and put the powerless citizen in the position of power: the contractor, or as Stefano puts it, 'in the shoes of the bad guys!'

The game has even reached the shores of Japan. A Japanese intern working with Stefano and Jasper wrote an article about the game and also translated the instructions into Japanese. Japanese players understood the game's context, even if they did not attach it to Maltese satire.

The game has received some backlash in Malta. Not everyone agrees that construction is negative. Stefano recalls a quote by the famous English writer Rudyard Kipling, 'What do they know of England, who only England know?' He hopes that the game can provide a way to 'create some critical distancing,' helping Malta's residents, who may know nothing else, to realise the absurdity of it all. **T**

If you'd like to try the game for yourselves, which we think you should, then visit: [boom.gua-le-ni.com](http://boom.gua-le-ni.com)





# START UP

## How to make beauty sustainable



*Sustainability is a key concern for modern consumers, the cosmetic industry is no exception. Cosmetic brands are looking for more eco-friendly solutions for their beauty products. **Antonia Riberio** interviews local start-up ALKA, which grows algae as a sustainable source of natural cosmetic components.*

Climate change, Covid-19, economic decay. We live in a world that forces us to adapt, but if we are to rise to modern challenges, we need to consider the world's needs first. Most of today's problems can be traced to environmental issues, even this pandemic. By using half of our space just for food production and severely polluting our oceans, we are transforming our home, pushing natural disasters, speeding mass extinctions, and making Earth unlivable. Global measures like the Paris Agreement are major steps in the fight for balance, but individual, everyday measures are just as important in the global war against climate change. And the battle starts with the consumer. 'keeps the planet cleaner,' says Johnson.

Maltese start-up Alka Ocean Products (based at the University of Malta's business incubator TAKEOFF) is rooted in a circular business model and sustainability. Alka was created by Nicola Muscat and Michael Borg in the Spring of 2019. Muscat has been swimming since she was four years old and has represented Malta in the Olympics twice. These experiences deeply anchor Alka to a sense of love for the sea and respect for the environment. 'I'm very passionate about our seas, so that's where the idea really came from. For me it feels like it all comes together,' the founder explains.

Alka specialises in the production of algae for cosmetic purposes. The company extracts specific

constituents with anti-aging and anti-inflammatory properties from the algae they grow. These constituents, or by-products, can be sold to cosmetic companies that add them to skincare products to boost their effects. Such a business-to-business approach has the potential to change the cosmetic industry at its core. It may alter the environmental impact of big-name brands that source their raw materials from sustainable companies like Alka.

## FASHION FINANCES

The project started as an idea to sustainably produce biofuel and food. However, biofuel production requires too much space, and Maltese algae species aren't ideal for this (even those categorised as edible can be toxic for humans because of adsorbed pollutants). The natural skincare market is lacking in options, and according to Muscat, the specific algae species Alka has adopted is underutilised in the industry. Another plus of transforming from a biofuel company to a beauty manufacturer is the profitability of the whole process. It is much easier to produce a small quantity of a high-value product. Cosmetics are very high value. Biofuels need to be manufactured on a very large scale to achieve the same profitability.

Research from McKinsey hints to a consumer mentality shift in the past few years. For example, in the United States, 66% of people would pay more for a green product, and 42% of millennials

*The next phase will be growing in scale and developing the extraction process to obtain the active compound produced by the algae.*

look for transparent brands that show their products' ingredients. This growing eco-consciousness in the market opens space for green cosmetic companies like Alka.

The company looks for a concrete client profile: luxury, nature-based brands. Alka aims to be an eco-friendly brand that utilizes the local assets Malta has to offer. The project is still in its initial stages. So far, ALKA has been successful in growing the algae at a small scale, in their home laboratories. The next phase will be growing in scale and developing the extraction process to obtain the active compound produced by the algae. This will be a 'make it or break it' moment, since the success of the company relies on the extraction's feasibility. The algae by-product must have the required quality to be used in cosmetics, whilst the process can't be more expensive than the compound itself.

## OVERCOMING CHALLENGES

Starting a company from scratch brings countless challenges. Muscat and Borg are figuring out how to obtain their product in the most efficient and sustainable ways. As an example, Muscat explains that 'it's not possible to keep a sterile environment, because we are using salted water and we need the spores to grow there.' The spores are the cells from

which a new alga will grow through germination. If spores die when added to the water, algae will not reproduce. Getting the right amount of UV light, maintaining salinity and oxygen levels, and assuring attachment of the algae to the substrate are other technical problems that arise in a controlled growth environment. Muscat laughs the difficulty off: 'It's funny because when you don't want algae to grow, they grow, but when you do want them...'

But challenges don't stop here. Starting a business also brings bureaucratic and economic headaches. One of the bigger issues ALKA has faced is Malta's mentality: 'Malta isn't start-up based,' Muscat laments, so the process takes time. Nonetheless, having so many things happening at the same time forced her to learn and adapt to new problems. To speed up the whole process, the founders created their own lab at home. This may sound bizarre, but buying their own material turned out to be easier, cheaper, and quicker.

Despite all the difficulties, Muscat's love for entrepreneurship may well be due to the uncertainty of her routine. Skeptical of typical day-to-day jobs, she enjoys the unpredictable nature of her work. Challenges and learning come hand in hand, which is why Muscat advises younger generations looking to venture into the entrepreneurial world to not be afraid — just dive in.

## FUTURE

ALKA's ultimate goal is to grow their algae at sea in a fully circular model. But evolving from a land-based laboratory to open sea can bring hardships. The growth environment becomes unregulated, and factors like nearby fish farms can affect algae growth as well as the quality of the finished product. Change means new tests to determine, once again, the best way to grow their macroalgae.

A circular model of production is the most sustainable and efficient. Muscat explains that the model is a small, controlled environment that could be adopted by fish farms. If the fish were to grow in proximity to algae, moss, and small crustaceans, the conditions would mimic natural ones. In this small ecosystem, fish would feed from the crustaceans, while their waste products would be absorbed by moss and algae, therefore generating a cycle of self-sufficiency. Problems that usually arise from fish farms, such as the accumulation of toxic chemicals in fish later consumed by humans, would be solved. This would require collaboration with fish farms. For these reasons, at least in the short-term, Alka will produce its products on land.

Alka may be taking its first steps into the gigantic entrepreneurial world, but it embodies the ideal of economically viable eco-consciousness. Muscat and Borg have risen above the unique difficulties they have faced — how many of us may say they have a laboratory at home, after all? Not to mention starting a business right before a global pandemic — and as a result are now preparing for their next leap forward. **T**





# LAB TO LIFE

## Controlling the Unpredictable on the Road

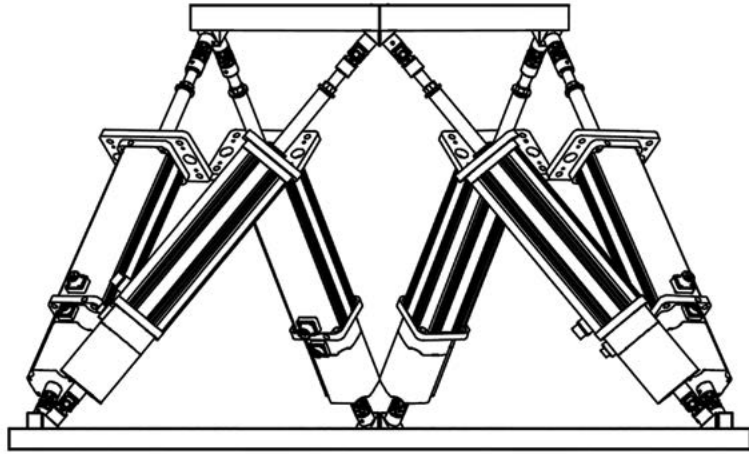
*The wide-open road is full of unexpected surprises, especially for motorcyclists. The slightest miscalculation can result in swerving out of control or a horrible accident. But what if there was a way to improve motorcycle safety by creating a stronger connection between rider and bike? Engineers at the University of Malta may have just found a way to build your perfect bike. By **Daniel Cassar**.*

**M**ost bikers will tell you the same thing, that being on a motorbike is an exhilarating experience. Many feel euphoria as the wind blows past their face and they leave their worldly worries behind. There's nothing separating the biker from the world outside. No windows, no windscreen — just the feeling of the world racing by. The problem is that a motorcycle's appeal also makes accidents more dangerous, and now with more cars and motorbikes on the road, accidents have been increasing on Maltese roads. The RIDE+SAFE project (funded by the [▶](#)



Top: Hexapod diagram  
Image by Daniel Cassar

Bottom: CAD model of  
the Stewart Platform  
Image by Daniel Cassar



Malta Council  
for Science & Technology)

is trying to bring accident numbers down.

Biker alertness is one factor contributing to motorcycle accidents. Alertness is reduced by fatigue, being distracted, or simply an uncomfortable motorcycle. The RIDE+SAFE project is designing a physical motorcycle simulator which can be used to customise a motorcycle according to the biker's preferences and physical characteristics. As a result, the biker is more focussed on the road, leading to safer driving.

The simulator itself consists of five main components. These include a Stewart Platform, a mock-up motorcycle, a virtual reality headset, simulation software, and a motion cueing algorithm.

The Stewart Platform is the simulator's mechanical foundation. The platform's position and orientation is controlled by six extendible, motorised legs. They manoeuvre the biker riding the mock-up motorcycle on top of the platform. The movements mimic the simulation. The mock-up motorcycle is fitted with sensors which provide data to the simulation software, such as steering angle, braking force, and throttle control. The motorcycle is tailor-made to the user's specific needs.

The fully immersive experience is completed with a virtual reality headset. It displays 3D environments to the biker. The simulation software receives data from the sensors installed on the mock-up motorcycle and translates it into platform movements. For example, since a braking force would result

*The customisation helps the biker experience a greater emotional attachment to their bike. This attachment should mean better motorbike care, less damage, and fewer accidents.*

in a decrease in speed, this action is communicated to a computer program controlling the Stewart Platform, so as to generate movements that provide a sensation of speed reduction to the rider's natural senses. This is called motion cueing. Another example is when the biker hits a simulated speed bump; this will translate into a quick upwards and downwards jolt of the platform.

Using this simulator, the motorcycle can be customised in collaboration with the rider. The settings are adjusted according to rider preferences. The customisation helps the biker experience a greater emotional attachment to their bike. This attachment should mean better motorbike care, less damage, and fewer accidents.

The project has nearly managed to build all the components it needs. The next stages involve implementing the motion cueing algorithm using a suitable programming language and testing it and the hardware as a complete system. These biker engineers will soon make Maltese roads safer. [T](#)

**This project involves a team of researchers and experts, including: project lead Prof. Ing. Philip Farrugia (Department of Industrial & Manufacturing Engineering), Ing. Sean Agius, Adrian Vella (expert from WKD Works Ltd), and Daniel Cassar mentored by Prof. Ing. Simon G Fabri (Department of Systems & Control Engineering). For more information, visit the RIDE+SAFE website or Facebook page.**

**The research project RIDE+SAFE (R&I-2017-003T) is financed by the Malta Council for Science & Technology through the Technology Development Programme 2018.**





Storytelling in Movement  
Photo by Rafael Mielczarek

# Do you speak 'Dance'?

From professional globe-trotting performer, to populist teacher, **Cassi Camilleri** speaks to dancer and choreographer **Karolina Mielczarek** about her mission to bring dance to the masses as a form of self-expression and communication.

There is something very special that happens when a child dances.

Their irreverence to rhythm, aesthetics, even balance, attracts an enthralled audience. Adults sit on the edge of their seat when a tiny human catches a tune and starts bopping to it, careless and free, a precious state they know all too well will become rarer as time crawls by.

But it doesn't have to.

'We dance from the moment we are born. It's creative communication,' explains performer, choreographer, and dance teacher Karolina Mielczarek. 'But when we start speaking, this new linguistic ability takes over, and we stop paying attention to the body as a communicative tool. The ability seems to be lost over time.'

Through her project, *Storytelling in Movement*, Karolina wants to reverse this process.

Karolina's movement classes are aimed at dancers and non-dancers alike. The philosophy that binds them is a will to express oneself through dance. Ultimately, the intention is to reconnect people to their bodies and emotions in a way that is positive and healing.

## SOWING THE SEEDS

Karolina began dancing at a very young age. 'My mother always wanted me to dance professionally. She said it would make life easier to deal with.' Karolina's mother enrolled her in classes at the National Ballet School in Łódź, Poland when she was just ten years old.

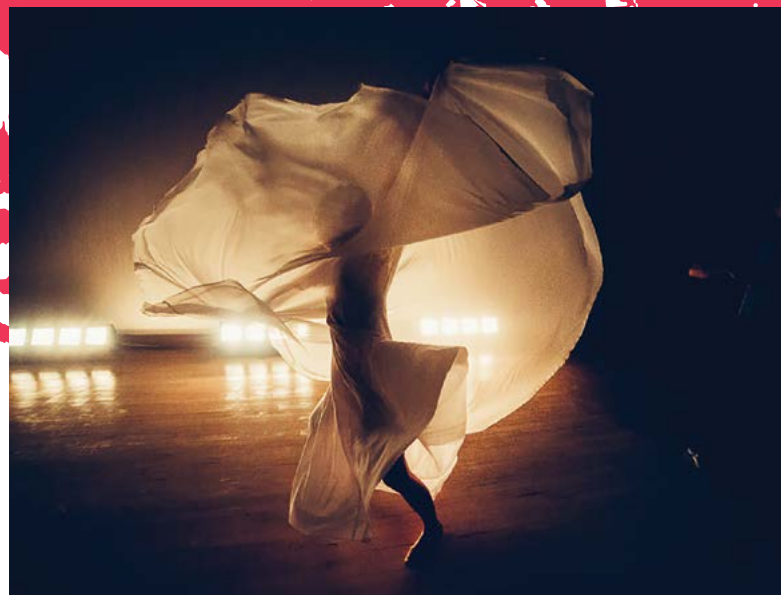
This kicked off Karolina's global tour, a journey that harboured stops in Belgium, Portugal, Israel, and many more. She worked with a slew of renowned companies including Aveiro Dance Company, Cynada Dance Theatre, Rina Schenfeld Dance Theatre, and Clipa Theatre.

'It was a very exciting time. I was meeting lots of different people and working with very talented dancers,' Karolina remembers. But there was something missing, something she couldn't quite pinpoint at the time. 'With professional dance, you learn something, you perfect what you learn, and you repeat again,' Karolina explains, emphasising the work's drilling nature.

'Of course, there is beauty there too, because when you do learn a piece of choreography and you execute it well, it gives you this big sense of satisfaction, which is amazing. But I felt that dance is more than just this,' Karolina admits.

Karolina found validation for those instincts when she met the Polish dancer, choreographer and founder of Cynada Dance Theatre: Bozena Eltermann. Eltermann was a soloist of the Theatre of Expression, one of the forerunners of dance theatre in Poland during the 90s. ▶

*'I wanted to live somewhere where the sun [often] shines and somewhere with elements of the primal: prehistory and the temples, the mother culture of the Maltese islands.'*



**Farewell from an evening called *Sketches* dedicated to the 30<sup>th</sup> anniversary of theatre and music departments**  
**Photo by Rafael Mielczarek**

Edelman believed in a modern vision of dance that came from an awareness of one's body and emotions. Her work has focused on self-explored movements that tap into the 'unconscious' mind, thus directly opposing more traditional, rigid styles of dancing such as ballet and jazz.

'I was part of her group in Poland in 2013, and this was how I started shifting my perspective on movement and dancing. She was a very important person in my life,' Karolina recalls.

Karolina moved forward with this understanding in search of something more 'primal', as she describes it. 'I wanted to find this dance [that] we dance when we are children; dance that doesn't need teaching or showing, but something that comes from within.'

She found her first glimpse of it in Finland.

## **FLEDGLING SPROUTS**

In 2019 Karolina travelled to Finland to give a series of workshops. 'I wanted to play with the idea of free movement and experiment. And to be honest, I didn't expect people to come. I thought maybe three people would show up. But we ended up with a class of 15.'

During those sessions, Karolina noted the interplay between conscious and unconscious thinking more clearly in her non-professional participants. 'The classes I teach now are based on this idea. Playing with the two brings something more primal but also personal. Ugly, odd, more human. Because it's not filtered by the rules and the aesthetics ballet and other dances usually have.'

One might assume that the next step after that would have been to jump into giving her own free-movement classes,

but life is hardly ever linear and straightforward. 'This wasn't something I went into knowingly,' Karolina emphasises, eager to communicate that the ideas she works with very much spring from gut feelings. 'It was a very slow and gradual process. This is still fresh. This is still new, even now,' she says.

Karolina's next step was travelling to Malta to expand her knowledge of psychology and the performing arts at the University of Malta (UM).

## **GROWTH**

Geography and heritage played a role in Karolina's decision to move to Malta. 'I wanted to live somewhere where the sun [often] shines and somewhere with elements of the primal: prehistory and the temples, the mother culture of the Maltese islands. It was all very important to me.' The fact that the university is English speaking and part of the EU was also a big plus.

Karolina's focus was on psychology and theatre studies. Both areas were very inspirational and impacted the birth of *Storytelling in Movement*. Otherwise, 'the project would never be here,' she says.

'Learning about the psyche and the theories of Jung were a revelation to me. I learnt about the idea of the collective unconscious, and how we share common storytelling elements like archetypes. Perhaps this is where the storytelling part of the project came into play! This was also what led her to the learnings of Mary Whitehouse. As a Jungian psychoanalyst herself, Whitehouse translated Jungian psychology into dance, a practice she called authentic movement.





**Storytelling in Movement sessions**  
*Photos by James Moffett & Sarah Zammit*

Karolina's time at the UM also gave her a chance to perform on a number of occasions. She considers her last performance as the most impactful. Invited to the University's School of Performing Arts' 30th anniversary, she performed a piece aptly titled Farewell under the supervision of Dr Mario Frendo.

'That performance was an experience of its own kind. Working with the other performers and Dr Frendo was very special. It has this conscious/unconscious element to it which I will never forget. I was wearing my wedding dress. And it was also me saying goodbye to that life and the people I studied with, and everyone I shared a life with for the past three years.'

## **FLOWERING**

Today, Karolina has refined the teachings she has picked up along the way and is hosting classes on a weekly basis at the University of Malta.

The classes start with a warm-up which helps participants connect to themselves, others, and the space they are dancing in. 'It also helps to awaken the body and strengthen the connection between the body and the mind.'


Next, Karolina delves into movement techniques to improve physical expression. 'Here we learn how to move, how to hold posture, how to be more in control of the way we move. I emphasise the use of sight. Moving the sight first and then the body.'

When the participants are ready to express themselves, she prompts them with a question which they seek answers to in movement.

The process involves exploring different movements, directions, and speeds, adding dimension and using the space consciously while also breaking everything down to come to an answer to the question they are trying to answer.

The results of these classes are already being seen, felt, and expressed. Karolina's husband Rafael Mielczarek, who she credits as being instrumental to her journey and this project — 'He is the biggest support I could only dream about,' she says — documents the classes through photography. The class ends with a reflection process as participants share the answers they came up with during class.

This aspect is very important to Karolina. 'It is beautiful for me so I can actually understand if these classes are beneficial beyond the physical. And so far, it seems that they are. One of the participants even uses them as therapy. She is very open in sharing the experiences she's been through. She tells me that these sessions were a revelation to her, and that she is now finding her way through things and solving her problems.'

The benefit of dance as therapy has been Karolina's biggest takeaway throughout her journey. Like her students, Karolina has learnt a lot about self-reliance. 'I always thought I needed help to do many things. I always thought I needed more resources and more people. And while, of course, it's helpful having others — and easier — sometimes you need to step up. If you need or want to start your own project, then you can just do it. You are the person you can rely on. You are enough to create anything that you want.' 

**To find out more, go to [storytellinginmovement.com](http://storytellinginmovement.com) or get in touch at: [storytellinginmovement@gmail.com](mailto:storytellinginmovement@gmail.com)**

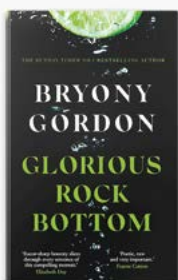
# TO-DO LIST

## PODCAST



Each week, **Freakonomics Radio** tells you things you always thought you knew (but didn't) and things you never thought you wanted to know (but do) — from the economics of sleep to how to become great at just about anything.

## BOOK



### **Glorious Rock Bottom** by Bryony Gordon

Sobriety isn't all green smoothies and positivities — breaking an addiction can be brutal. Bryony's raw honesty is a breath of fresh air. We need more honesty, and hitting rock bottom is okay.

## MOVIE



### **The Social Dilemma**

Companies such as Google, Facebook, Instagram, and Twitter have a huge influence over citizens. Tech experts sound the alarm on the dangerous human impact of social networking.

## YOUTUBE CHANNEL



We all want to find more time to read and write. While you're waiting for the muses to strike, why not check out **R.C. Waldun's** insightful and quirky videos for reading and writing tips?



## TV



### **Sex Education**

There's something cathartic about high school sex comedies. But, besides the teenage drama, **Sex Education** has a lot to offer with regards to relationships, romance, and sexuality.

## MUSIC

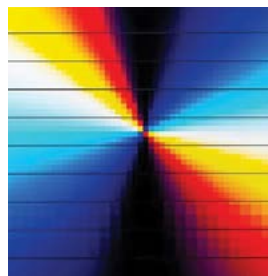


### **Tash Sultana**

A one-person band whose musical repertoire stretches from psychedelic rock to reggae and lo-fi. Perfect for chilling!



## INSTAGRAM



### **felipepantone**

A contemporary artist with a bold art style. Graffiti, kinetic art, and installations that will dazzle and amaze.

# RETHINK

Where are Malta's innovators years after their ideas made the news? ReThink, a weekly radio show and podcast of **THINK** magazine, meets researchers and innovators to follow up on their ideas featured in the magazine in the past.

## Listen on:

Campus FM on Wednesdays at 13:30  
Campus FM on Fridays at 15:00 (repeat)

On **THINK**'s website:

↖ [um.edu.mt/think/rethink-podcast](http://um.edu.mt/think/rethink-podcast)

On your favourite podcast apps



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