SCI-CO+ Magazine 2024 October-December n°5

NEW FRONTIERS IN SCIENCE COMMUNICATION

INNOVATIVE MODELS, METHODOLOGIES, SKILLS FOR THE DIGITAL TRANSITION IN THE FIELD OF SCIENCE COMMUNICATION

SC+

n°5

NEW FRONTIERS IN SCIENCE COMMUNICATION

2024 October-December

The SCI-CO+ Magazine

On the cover:

Title: Fantasy World with mountains and water
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In this issue...

The fifth issue of Scico+ magazine analyses the evolution of science communication from the early 1980s to the era of the web, social media and digital platforms.

The editorial in this issue is dedicated to Vittorio Silvestrini, the founder of the City of Science in Naples who unfortunately left us at the end of the summer, an international reference point for the scientific and science communication community.

This evolution of science communication also manifests itself in the teaching methods of science education for young children.

However, the new digital communication channels have become useful 'tools' for criminal organisations, exposing younger children to risks, and so this issue also discusses the need to control these new communication spaces.

The article by the Idis Foundation - Città della Scienza **'Scientific Communication 2.0: The International Echo of Futuro Remoto'**, drawing a parallel with the transformation of the science popularisation event 'Futuro Remoto' from its origins to now, shows how science communication has evolved.

Futuro Remoto, Europe's first event for the dissemination of scientific and technological culture, was born in 1987 from an idea of physicist Vittorio Silvestrini, who sadly passed away at the end of this summer.

Silvestrini was convinced that the computer revolution and technologies made knowledge widespread and accessible to all and that this process therefore strengthened democracy.

The first Futuro Remoto was born in October 1987 out of this awareness. After 38 years, Futuro Remoto has acquired an international echo that stems from the power of digital communication.

This year, Futuro Remoto - scheduled from 18 October to 6 December 2024 - addresses the theme of CO-SCIENCE. Exploring the true and the false, order and disorder, right and wrong... As in every edition, Futuro events will let the public experience the cutting edge of science and its impact on quality of life, the environment and social well-being.

The Trinity College article **'Science for the screen'** and the article **'Creativity and technology at school: a possible pairing'** by the Idis Foundation - City of Science show how digital communication for the one and the use of technology in the other are examples of the evolution of communicating science to children. The Trinity Collage article shows how science television programmes for children have evolved from TV to digital platforms; the article by the Idis Foundation - City of Science shows how technologies can also stimulate children's creativity in learning processes. In both articles, reference is made to STEAM.

Finally, the article **'The Evolution of Digital Communication in Criminal Organisations'** by DATA BANK prompts one to reflect on the fact that criminal organisations are also evolving using digital spaces and how this exposes adolescents to various dangers.

In the **'News'** section of this issue of the magazine, you will find dates and information about international science conferences that will take place by the end of 2024.

Finally, the **'News from SCICO+'** presents the state of the art of the project discussed at the 4th transnational meeting held at the Navet Science Centre in Sweden in June this year.

SUMMARY

NEW FRONTIERS IN SCIENCE COMMUNICATION

Doing action research with the SCI-CO+ project

by Alessandra Drioli

Through its strategic goals, SCI-CO+ aims to improve the dissemination of scientific knowledge, promote collaboration among researchers, engage all audiences, ensure the reliability of information, and support continuous innovation in formats and technologies used.
In this first two years of the project, discussion and practice have highlighted some key points that I share here.

SCI-CO+ moves from the assumption that digital communication of science is characterized by its **flexibility and dynamism**, two fundamental qualities that determine its effectiveness in the contemporary context. The flexibility of digital communication allows the adaptation and customization of science content to different targets. This multimodal approach optimizes comprehension and engagement and means that it can quickly integrate content from current scientific affairs, ensuring that audiences have access to the most up-to-date information. The dynamic nature of digital communication is manifested in its ability to respond in real time to events and audience interactions. Digital platforms, such as social media and online forums, provide spaces for immediate feedback and discussion, allowing scientists to adapt their messages and approaches according to public reactions and changes in the scientific environment. This ability to respond quickly is crucial for maintaining public interest and addressing misinformation phenomena in a timely manner. The high degree of interactivity fosters a two-way dialogue. This interactivity not only enriches learning but also helps to build a collaborative and shared learning community. Engagement thus contributes to increasing a sense of trust in scientific research. The emergence of new platforms and tools further expands the possibilities for presenting and interacting with scientific content in innovative ways. Clearly, this also poses challenges, such as the need to ensure the quality and reliability of the information disseminated. With the ease of accessing and publishing content online, it is also essential to implement verification and control strategies to prevent the dissemination of incorrect or misleading information. **Reliability** becomes a key element. The combination of various communication strategies and advanced technologies involving scientists, communicators, educators, and technologists must ensure the creation of high-quality content that is both scientifically accurate and attractive.

Therefore, it is necessary to promote transparency and clarity, ensuring that scientific information is accurate, verifiable, and easily understood by various cultural and social contexts with a strong focus on its **accessibility and comprehensibility**. The difficulty of maintaining a balance between the complexity of scientific content and the need to make it accessible and understandable for today's incredibly diverse non-specialist audience is evident. Specific skills in science communication are needed, which are not always present in research teams. To address this challenge, it is important once again to foster collaboration between scientists and communication professionals and to invest in training scientists in the most effective communication techniques.

The use of artificial intelligence algorithms and machine learning to create learning experiences tailored to the individual needs and interests of users leads to thinking about **personalization of contents**, welcoming continuous feedback from the audience with the potential for constant improvement.

To ensure all this, a constant **evaluation and analysis of impact** becomes necessary with the use of quantitative and qualitative metrics to measure the effectiveness of chosen communication strategies.

The **international dimension** in which we necessarily move today then pushes us to recognize at all times the importance of communicating scientific discoveries in a way that can be understood and appreciated by people of different cultures and languages, promoting international collaboration.

Finally, central remains the issue of **sustainability**, intended in all its meanings, economic, social and environmental, which indicates the need to promote the development of networks, strategic partnerships with academic and research institutions, government agencies, nonprofit organizations and private industry, while respecting all the issues previously discussed. Most importantly, it indicates as a priority to introduce inclusive and accessible models with environmentally sustainable design and development. It has become an increasingly important component in the design of interactive experiences. Designers are being asked to think about the environmental impact of their choices, promoting practices that minimize resource use and reduce their ecological footprint. This may include optimizing code to reduce energy consumption, choosing eco-friendly materials for hardware devices, and promoting sustainable behaviors through the user experience.

Alessandra Drioli
Responsabile del Science Centre di Città della Scienza

Science Communication 2.0: the International Echo of Futuro Remoto

by Rosa Procolo, Emanuele Romeo

The article provides an overview of the importance of digital science communication, highlighting how emerging technologies are transforming the way science is disseminated and understood by the public. It explores how digital platforms, social media and other forms of online communication are breaking down geographical and language barriers, making science accessible to a global audience. In addition, the article focuses on the international dimension of 'Futuro Remoto', an event that celebrates scientific and technological innovation, promoting the exchange of ideas and knowledge between researchers, educators and the public worldwide. The international initiatives and collaborations that characterise this event are discussed, emphasising its crucial role in fostering an inclusive and globally interconnected scientific culture.

FUTURO REMOTO: THE ORIGINS

Futuro Remoto is known as the first European event for the dissemination of scientific and technological culture.

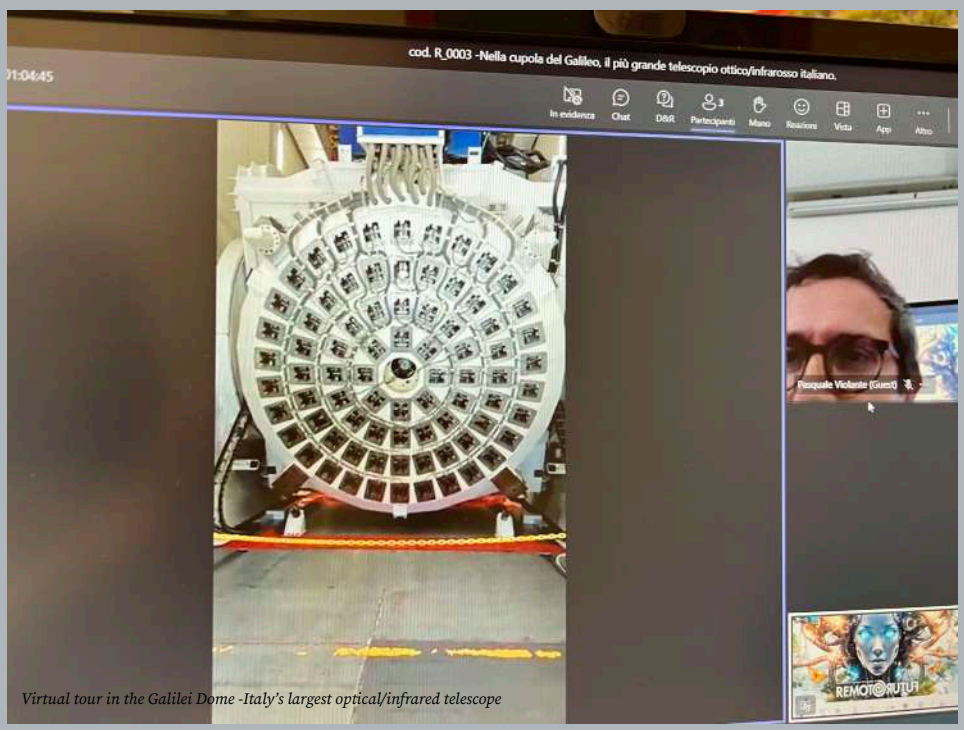
The story of Futuro Remoto began on 17 October 1987 with the article C'è un alternativa al modello settentrionale (There is an alternative to the northern model) that the experimental physicist, Vittorio Silvestrini, published in the political magazine Rinascita, the weekly theoretical publication of the Italian Communist Party.

It is a highly original article, almost a manifesto: Vittorio Silvestrini not only proposed an innovative - and still relevant - model of economic, social and civil development for southern Italy but also, and perhaps above all, an original and modern idea of public communication of science.

Silvestrini's proposal stems from the awareness, which was ripe in the mid-1980s, that the computer revolution is capable of profoundly transforming both the production system and the social relations between and within nations. 'In our midst,' he writes in an article in La Stampa, 'an imposing army of artificial slaves is at work: the labour force developed by all the machines in operation in industrialised countries - as it is easy to calculate from the world's energy consumption - to that of the arms of a hundred billion workers. Until a few years ago, these artificial slaves were only capable of performing strictly mechanical and strictly repetitive work. Today, with the development of computers, their behaviour is much more varied and autonomous, and the range of functions in which they can replace or assist us has suddenly widened'.

Robotics represents just one of the many aspects of change in those years, in which it is becoming increasingly clear that a 'knowledge society' is emerging in which the control of knowledge is at the heart of the social dynamics, determining the inclusion or exclusion of people. Knowledge controlled by a few results in a monopoly of knowledge with a consequent regression of democracy, despite the fact that technology can create a world that seems more modern and futuristic. On the contrary, widespread knowledge accessible to all strengthens democracy and development can become more socially and ecologically sustainable.

The17th October 1987 marked the start of an exciting journey that has lasted 38 years in which Italian scientific research has told the public at large about its many successes, countless challenges and, above all, the beauty of knowledge.



Virtual tour in the Galilei Dome -Italy's largest optical/infrared telescope

Live link to the Cherenkov Telescope Array Observatory (CTAO)

THE XXXVIII EDITION OF FUTURO REMOTO

This year, Futuro Remoto - running from 18th October to 6th December 2024 across Italy - addresses the highly topical theme of CO-SCIENCE. Exploring the true and the false, order and disorder, right and wrong... Futuro Remoto will showcase the cutting edge of science and its impact on quality of life, the environment and social wellbeing. This event will involve all disciplines of knowledge and reflect on the concepts of responsibility, awareness and ethics. The relationship between science and society is fundamental and today more than ever necessary to face the great contemporary challenges.

The programme of this edition is extremely rich thanks to the collaboration of the seven universities of Campania, the partnership with the main national research institutions and the participation of many international entities.

With over 400 events, the programme will be available on the Futuro Remoto website: www.futuroremoto.eu.

The innovative and engaging proposals will embrace all disciplines, from astronomy to volcanology, botany to mathematics, art and literature to physics, chemistry and biology, design to neuroscience, medicine, geology and more.

Numerous initiatives will therefore develop the CO-SCIENCE theme, offering the public the chance to interact, experiment and discover the latest frontiers of knowledge thanks to the valuable presence of scientists, researchers and experts.

The XXXVIII Edition of Futuro Remoto takes on a regional dimension with events throughout the Campania region, starting in Naples and continuing in Salerno (8 November 2024), Benevento (22 November 2024), Caserta (29 November 2024) and Avellino (6 December 2024).

THE INTERNATIONAL DIMENSION OF THE DIGITAL COMMUNICATION OF SCIENCE

The international dimension of the digital communication of science represents a crucial aspect in the global dissemination of scientific knowledge, crossing geographical and cultural boundaries through the use of digital technologies. In an increasingly interconnected world, digital communication of science uses online tools and platforms to facilitate international collaboration and promote a shared understanding of scientific discoveries.

The power of digital communication lies in its ability to break down barriers and connect researchers, scientists and citizens of different nations. Through websites, social media, blogs and video-sharing platforms, scientific information can be disseminated quickly and widely, reaching diverse audiences and creating opportunities for knowledge exchange across countries and cultures. International scientific conferences, now often streamed or recorded and available online, allow experts from around the world to share their findings with a global audience, facilitating international debate and collaboration.

Social media has played a transformative role in the digital communication of science, offering tools for global engagement and participation. Twitter, Facebook, Instagram and other platforms allow scientists to interact directly with the public and share updates and discoveries in real time. Viral campaigns, information threads and sponsored posts help raise awareness and educate an international audience on scientific topics of global relevance, such as climate change, pandemics and technological innovations.

International collaborations in scientific research are also facilitated by digital communication. Collaborative platforms such as GitHub, Google Drive and online project management software enable researchers to work together on common projects, share data and results and coordinate their activities efficiently. Video conferencing and virtual meetings break down time and geographical barriers, enabling regular meetings between scientists from different parts of the world and facilitating the progress of joint research.

Another important aspect of the international dimension of digital science communication is global crisis management. During events of global significance, such as the COVID-19 pandemic, digital communication played a crucial role in the dissemination of accurate and timely information. International organisations, such as the World Health Organisation (WHO) and the Centers for Disease Control and Prevention (CDC), used digital channels to provide updates, recommendations and data, helping to coordinate the global response and inform the public about risks and preventive measures.

The international dimension of digital communication of science also implies consideration of challenges and opportunities related to access, technologies and information. While digital technologies have made scientific information more accessible, there are still disparities in access to the Internet and technologies between different regions of the world. Initiatives to promote digital inclusion and equitable access to scientific resources are essential to ensure that the benefits of digital communication of science are equitably distributed and that no region is excluded from global participation in scientific knowledge.

THE INTERNATIONAL DIMENSION OF FUTURO REMOTO

Città della Scienza (City of Science) has always acted with a view to international openness, in close relationship with international organisations, the Italian government and networks, concretely promoting the development of exchange programmes and transnational projects in the field of science and innovation. Starting in 2020, Città della Scienza wanted to enhance this dimension by including a programme entirely dedicated to the international dimension within the Futuro Remoto event.

This programme, which is always new each year, is constructed by building on the consolidated credibility that the City of Science enjoys internationally, drawing on the extensive reservoir of networking and partnerships built up over time.

It is no coincidence that the first edition of the international programme started in 2020 when the spread of the Covid 19 pandemic highlighted more than ever the indispensable role of the international dimension of

scientific and technological research for our well-being and that of the planet. The 'Futuro Remoto International' programme was therefore born as an online activity programme. The online dimension has turned out to be an opportunity rather than a limitation, as by eliminating distance and logistical barriers it has made facilities, research centres and museums from all over the world accessible to the Futuro Remoto audience.

THE TARGET OF FUTURO REMOTO INTERNATIONAL

The audience of Futuro Remoto International is mostly made up of high school students from Campania, but also sees a large participation of university students and PhD students from all over the country, such as, for example, PhD students from the Southern High School of the Federico II University.

In order to ensure the active participation of students, the work of planning the events always includes advance contact with the schools in order to provide them with preparatory information and teaching materials. In some cases, downstream of the material provided, schools are asked to send in students' questions in advance in order to facilitate the exchange between participants and make the events more interactive.

CONCLUSIONS AND FUTURE PROSPECTS

The international dimension of 'Futuro Remoto' is one of its main strengths, helping to make the event an important reference point in the global science and technology popularisation scene. The ability to attract and involve a vast network of international contributors and participants testifies to the festival's relevance in promoting science and global culture.

Global Collaborations and Synergies

One of the distinctive features of 'Futuro Remoto' is its ability to create synergies with prestigious academic and research institutions from all over the world. Universities, research centres, science museums and non-governmental organisations actively collaborate, contributing their know-how and latest findings. These partnerships not only enrich the event programme, but also foster interaction and knowledge exchange between experts from different countries, creating a fertile environment for innovation and scientific growth.

Presence of International Speakers and Guests

Each edition of 'Futuro Remoto' features internationally renowned speakers who bring different and innovative perspectives on the topics discussed. These experts, from a variety of scientific and technological disciplines, share their experiences and research with a diverse audience. The presence of international guests not only enhances the prestige of the event, but also stimulates debate and reflection on a global scale.

Topics of Global Relevance

The topics addressed during Futuro Remoto are carefully selected to reflect global challenges and opportunities. Topics such as the climate crisis, sustainable energy, biotechnology, artificial intelligence and public health are just some of the examples covered. This thematic choice is crucial for attracting the attention of an international audience interested in understanding how these topics are approached from different perspectives.

Networking and Cooperation Opportunities

Futuro Remoto offers an important networking platform for scientists, researchers, entrepreneurs and students from all over the world. Meeting and exchange opportunities during the event facilitate the creation of new collaborations and joint projects. This networking is not only limited to meetings during the event, but often leads to lasting and fruitful partnerships that continue beyond the event itself.

International Media Outreach

Media coverage of 'Futuro Remoto' plays a key role in its global success. The event is followed by numerous international media outlets, which help to disseminate the scientific discoveries and technological innovations presented. Social media presence and streaming broadcasts allow an even wider audience to participate virtually, overcoming geographical and time barriers.

Cultural and Educational Exchanges

Another relevant aspect of the international dimension of 'Futuro Remoto' is the opportunity for cultural and educational exchanges it offers. The inclusion of specific programmes for international students and young researchers encourages learning and interaction with experts from various fields. This not only enriches the participants' education, but also promotes a broader and more inclusive understanding of different scientific cultures and approaches.

The internationalisation of 'Futuro Remoto' has had a significant impact not only on the Italian scientific and technological community, but also on the global community. The event has become a model of excellence in science dissemination, capable of inspiring other similar events in different countries. Looking to the future, the goal will be to continue expanding this international dimension, involving more and more partners and participants from all over the world, in order to face the challenges of the future together and build a world based on knowledge and innovation.

Rosa Procolo
Project manager, Area Projects and Teaching Laboratories STEAM

Emanuele Romeo,
Idis-Città della Scienza Foundation

SCIENCE FOR THE SCREEN

The evolution of children's science TV shows in Ireland

by
Makua Ifediora

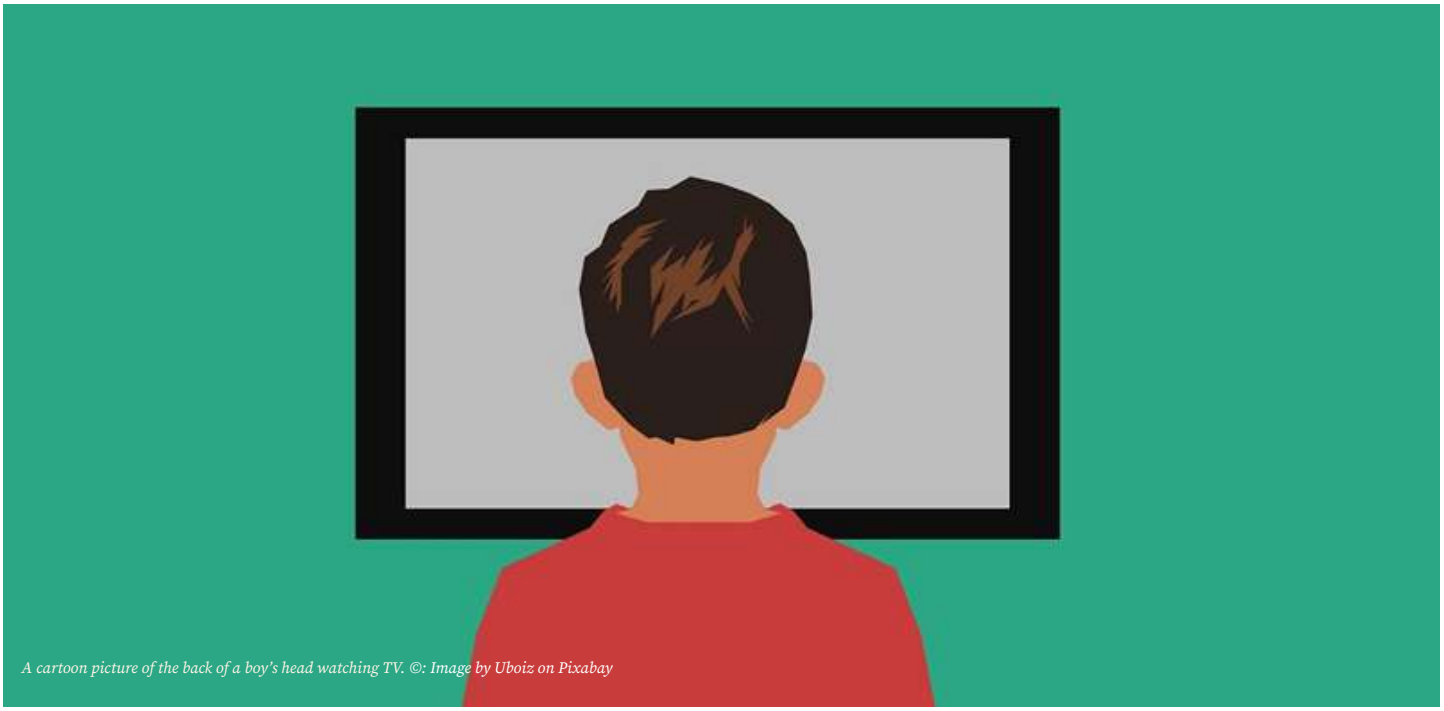
This article looks at the different types of scientific children's TV shows under the headings Science, Mathematics, and General Science from 2000 to 2024, and their evolution from broadcast channels to streaming services in Ireland.

In 1984, Walt Disney coined the term 'edutainment' as a way to describe the process of learning and having fun while doing so. Edutainment is seen in children's TV in varying degrees, from programmes that teach valuable lessons through engaging stories to shows made purely for educational purposes. Many styles of scientific children's TV exist but mostly fall under the headings of Science, Mathematics, and General STEAM (Science, Technology, Engineering, Art, and Mathematics).

Viewing habits of children in Ireland have shifted from the early 2000s to now, evident in the migration of many of these shows from broadcast channels to streaming services. With this came the inevitable fall of many of the shows we used to love as kids, and the surfacing of new ones that have filled their stead.

SCIENCE

IFew children's TV shows in Ireland focus solely on Biology, Chemistry, or Physics. Many of the shows we see today delve into all the STEM subjects, sometimes extending into arts and culture, but there are a few older shows that highlight what we typically think of as 'science'.



A cartoon picture of the back of a boy's head watching TV. ©: Image by Uboiz on Pixabay

A picture of scientific conical flasks and graduated cylinders. © Image by girl with red hat on Unsplash

Backyard Science was an Australian kid's TV show that aired from 2003 to 2007 and was, like many Australian children's shows, shown in Ireland. In the vein of the now-popular Myth Busters, Backyard Science focused on children carrying out DIY projects using everyday materials. Like a lot of these early 2000s shows, Backyard Science is now lost to time, archived online but no longer shown on TV.

Octonauts and Wild Kratts both aired around the same time in the 2010s and focused on specific branches of Biology we rarely see on children's TV today. Octonauts focuses on teaching children about marine life, while Wild Kratts explains general zoological and species concepts. These shows may sound familiar because, as seems required for the longevity of a show, both have migrated from broadcast to Netflix or, in the case of Wild Kratts, put on YouTube for free.

While Backyard Science, Octonauts, and Wild Kratts both blend educational content and entertainment, a more modern show has recently emerged focusing solely on effective and accurate scientific education. Crash Course, founded by John and Hank Green, is a YouTube series and website show that explores the same topics as what is taught in a classroom. As such, many children use it as supplemental material in addition to their at-school learning.

Crash Course, though centered on the educational part of edutainment, uses easy-to-follow language and engaging visuals that make learning fun. Paired with its ease of access, it's clear why the series has over two billion views, according to the Crash Course website.

MATHEMATICS

Mathematics isn't a common subject on kids' TV and is often seen as a smaller part of other general science shows. Two shows that ran on Irish television that showcased mathematical concepts to children were Team Umizoomi and Numberjacks.

Team Umizoomi's first episode aired in 2010 on Nickelodeon and followed the team—Jeannie, Milli, Geo, and Bot — who used their Mathematical Powers to help fix the missing pieces of Jeannie's dragon's kite. For children who struggled with mathematics, Team Umizoomi did a brilliant job of making mathematical concepts a viable way to solve relevant problems.

Originally airing in 2007 on BBC2, CBeebies, and Tiny Pop, Numberjacks was a British TV show about 10 numbers — from 0 through 9 — that lived in the nooks of a family's

couch. Much like many children's STEM TV shows of the 2000s, both computer animation and live-action were used to create the world of the Numberjacks.

The Numberjacks are given missions by real-life children called Agents about problems in the real world that can be solved through counting and numbers. The show's charm was in its pure surrealism. Imagine this; a family of numbers that use their number powers to solve number-related problems in the real human world. Each number has its own personality depending on its 'age', or the number itself, with 0 being a small baby and 9 being the oldest.

The sheer creativity and absurdity of the show is what makes it so memorable. At the time, it was a much-loved show that helped children visualise numbers and their effects. Since 2017, Numberjacks has been replaced with Numberblocks, a bright, colourful, and more accessible version of the former show.

One thing that can be observed with children's shows filmed in the late 2010s and 2020s is the accessibility level and age range they aim for. Numberblocks skews towards teaching young children to count through repetition and lively musical numbers. For more modern audiences, children's science TV is geared more towards education than simple entertainment.

GENERAL STEAM

Kids' science TV has always focused on inspiring curiosity about the world in children. As such, the most common theme within science TV is general STEAM, where a show covers a wide variety of the sciences alongside arts and culture.

Nina and the Neurons aired from 2007 to 2015 on CBeebies, now available on Apple TV, and followed an adult neuroscientist named Nina and her five computer-generated 'neurons' that represent our five senses. With the help of the relevant neurons, Nina answers scientific questions posed to her by children. Nina and the Neurons is the overall umbrella show, with multiple series that branch off. Each series has a theme, such as 'Brilliant Bodies' covering questions about the human body, and 'Go Inventing' which handles engineering and technological concepts.

A more comparable, modern version of Nina and the Neurons is Emily's Wonder Lab. The show premiered in 2020 on Netflix and follows Emily, a science educator who conducts fun experiments and activities with children. Though it was cancelled after just one season, Emily's Wonder Lab is a good example of the direction that children's TV is veering towards; the onset of streaming and the letting go of traditional broadcasting channels.

Other general STEAM kids' TV channels include the classic Little Einsteins and more modern shows like Ada Twist, Scientist. Both cover various subjects, often blending science and engineering with the arts and world cultures. One positive of these general STEAM shows is the diversity they display, both in the various characters, cultures, and concepts they cover. This inclusivity is vital, as children of all backgrounds watch these shows, and seeing themselves on the screen allows them to see that they can be anything they want to, including scientists, mathematicians, and engineers.

CONCLUSION

Historically, children's TV in Ireland was shown on broadcasting channels like RTÉ Jr (where RTÉ is Ireland's state broadcasting service) or the Tiny Pop/Pop/Pop Girl trifecta, among many others. Watching times for children was regulated by a viewing style Forbes calls 'appointment viewing' . The introduction and subsequent boom of streaming platforms like Netflix and creator-led platforms like YouTube have shifted children's TV from broadcast to streaming.

The decline of cable TV and the rise of on-demand services like Netflix or Max follows a larger trend in the modern age of TV viewing. This could be due to the ease and convenience of streaming. No longer are people confined to the whims of broadcasting channels. Now we pick and choose our own entertainment, and this extends to children's shows. For many, the only reason to tune into cable TV is to catch up with sports channels that haven't yet migrated over due to long-running contracts made with broadcasting companies.

Who knows where we could be in the future? Perhaps what we know as TV will die away, leaving only streaming services to provide our entertainment. If you look around, there is a plethora to choose from and the choice is only widening as more companies seek the success of sites like Netflix. Perhaps a children-specific streaming service may come in the next few years. While more choices may seem like a positive, I worry that we will end up back where we were. With so many paid sites to choose from and all the content in the digital space split across them, it may as well be like cable TV all over again.

For now, the evolution of children's science shows from broadcasting to streaming, from dated computer-generated art to more polished, colourful animations, is fascinating.

Makua Ifediora studies Molecular Medicine at Trinity College Dublin (TCD) and is currently doing an internship with the TCD Science and Society Research Group

Our WALL-E

Creativity and technology at school: a possible combination

by Flora Di Martino

In order to express itself, creativity needs operability, materials, tools. It is not an innate talent, but a potential present in everyone, which must be cultivated in the direction of a true transversal competence to be stimulated and grown at school as well. This is why at Città della Scienza a workshop on coding entitled 'Let's Program' is proposed to primary school classes.

Creativity is a skill that we use every day in all areas and disciplines, and is an integral part of education and technology. In particular, the creative capacity is highly developed in children; their minds are very elastic, eager to learn and learn and therefore more likely to come up with new, original, and creative ideas. Being creative means going outside the box, linking concepts, objects, and knowledge together in an unusual way, with the aim of achieving results. Creativity is an innate ability that starts to show itself from early childhood, when young children try to express themselves through play and drawing. It is not uncommon for children to be able to travel with their imagination, inventing fantastic stories, using the few tools at their disposal. The relationship between coding and creativity is a fascinating and evolving topic that has sparked a lively debate in recent years. In the past, creativity was often considered an exclusive domain of human beings, while coding was seen as a technical and rigid activity. However, with the advancement of technology and the emergence of new programming tools, the line between these two areas has become increasingly blurred. Moreover, it is equally important to remember that human creativity remains an essential element in this process, guiding the development and use of these technologies in a responsible and innovative way. Let us now briefly look at some of the features. Coding provides a versatile set of tools to bring innovative ideas to life, be they works of art, video games, artificial intelligence, or interactive experiences. It allows free experimentation, combining logical and computational elements with expressive languages. Through coding, it is possible to process complex data, identify hidden patterns, and generate customised and adaptable solutions.

Through programming, it is possible to bring to life stories, characters, and interactions that capture the imagination and offer unique experiences to users. Coding fosters collaboration between people with different skills and backgrounds, stimulating the exchange of ideas and the creation of collective projects. Through online platforms and developer communities, code, tutorials, and resources can be shared, nurturing a culture of continuous learning and open innovation.
In addition, it allows them to bring new ideas to life and create a huge range of digital products, from websites and apps to interactive video games. Creative programmers use their ingenuity to come up with innovative and original solutions to complex problems, creating unique and engaging experiences for users.

It requires critical thinking and problem solving. Programming is not just blindly following instructions, it requires a deep understanding of logical concepts and the ability to deal with unexpected challenges.
Ultimately, coding is not just a tool for creating software and websites, but a powerful language for expressing creative ideas, solving problems in innovative ways and creating unique experiences. Its increasing accessibility and the emergence of new programming paradigms are opening up new avenues for computational creativity, with a significant impact on various fields and aspects of our lives.
With well-structured activities, children can solve simple problems and understand the meaning of programming, which is useful for the active and non-passive use of devices.
Referring to the SCI-CO+ Project's macro-objective of promoting modes of scientific communication in order to outline professional profiles capable of implementing them, this article describes a creative teaching workshop on coding for students aged six to thirteen.
Through play and programming, children are taught how to solve problems and develop 'computational thinking', a logical-creative process that enables them to break down a complex problem into several parts in order to tackle it more simply and solve the overall problem. With coding, children can also become active subjects of technology. Furthermore, programming a robot and making it move in space improves logical-mathematical skills, spatial orientation and the study of elementary geometry.
The aim of the workshop is for students to learn how to write code to programme a robot that has to deliver messages to the inhabitants of Earth in order to save the planet.

Flora Di Martino, Head of Educational Innovation Office Idis Foundation - City of Science

Measuring and programming the robot

Message delivery

In this activity, the 'story' takes on an important role, starting with a story, in our case we chose to deal with the theme of the environment, which has fully entered the curriculum and textbooks for primary school. This is why it seems useful to address this topic by starting with a viewing of the trailer for the film WALL-E https://www.youtube.com/watch?v=57Fg__7nJ2Q. When Disney-Pixar presented WALL-E in 2008, it was a public and critical success and immediately became an ecological manifesto, even winning the Oscar for best animated film. In this story, deep and important themes are narrated, but always with a positive, even optimistic spirit in the finale, which can be explored further in class during curricular activities.

The general objectives of the workshop are

· Introducing young children to coding and computational thinking, i.e. the ability to solve a problem by planning a strategy.

· Transferring coding techniques to move from passive to constructive use of devices and understanding how to 'make' programmable objects do something, through the basic concepts of the programming language, accessible to all, receiving practical guidance on how to programme the Wall-E robot, while having fun!

· Stimulating children, especially those with learning difficulties, to discover coding and programming.

· Encouraging creativity and problem solving.

and transversal ones:

· Sorting thoughts and finding solutions.

· Knowing how to orient oneself in space.

· Learning to measure.

· Becoming active subjects of technology.

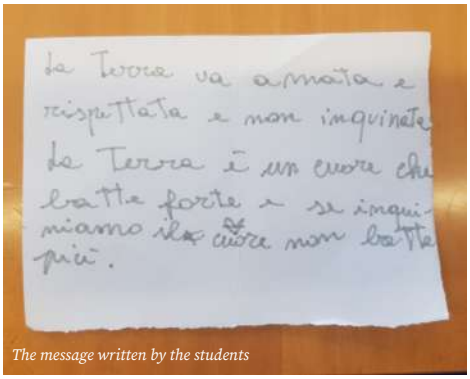
The activity starts with watching a trailer of the animated film WALL-E, which suggests several topical issues such as pollution, lifestyles, consumerism, renewable energy, and the responsibility of our actions especially towards nature to be explored in class.

The film tells the story of the robot WALL-E, who in the distant future is the sole inhabitant of the planet Earth, now abandoned by humans due to excessive pollution and the continuous accumulation of waste. One day, a high-tech robot named E.V.E. descends from the sky and makes him fall in love. In the name of this love, the two live an adventure that changes their destiny and that of humanity. After watching, the children are asked about what they have seen, what emotions, what messages are present and then they are asked to write a short story taking their cue from the topics covered in the film and develop a sequence of actions (programming code) to be carried out by the little robot, which they will have at their disposal (their WALL-E). The ultimate goal will be the delivery of messages to humans to save the Earth.

Then small working groups of max. 4/5 students are created. Each group will have to invent a short story, represent it with a path, programme the robot, write the code and come up with a message to save the Earth.

The presenter starts the activity by presenting WALL-E and asks the children to observe and study it to define its characteristics. He then goes on to describe the programming area: what the buttons and arrows indicate and how the robot can be programmed. Once this preliminary phase has been completed, the children are asked to imagine a route from the work group's workstation to the message delivery area. At this point, the children define the route and the commands they have to give WALL-E to make it execute the imagined route and deliver the message. The programming code must be written on a sheet of paper before programming the robot and handed over to the presenter (because it will be used at the end to define the meaning of programming code). As a final step, the presenter reads the code prepared by each group, programmes the robot and checks whether the indications received are correct in order to make the robot follow the same path and reach the goal correctly, otherwise the code must be corrected and the robot tried again. The activity ends with the reading out of all the written messages to develop a decalogue to save planet Earth, which is handed over to the accompanying teacher to be studied in depth in class.

In conclusion, coding and creativity are not opposing concepts, but rather two sides of the same coin. Creative programmers use their technical skills and imagination to bring innovative and engaging digital products to life. As technology advances, the role of coding in the creative sphere is set to grow more and more.



The message written by the students

THE EVOLUTION OF DIGITAL COMMUNICATION IN CRIMINAL ORGANISATIONS

Social new spaces to control

by Alessandro Stile

Criminal organisations are also evolving their communication to control the new digital spaces (cyberspaces) that are being created through the new channels offered by digital communication and the Internet. New generations are increasingly moving into digital spaces, moving away from the physical spaces that were and are under the control of criminal organisations for their illicit business.

We are in the midst of the evolution of digital communication, favoured and facilitated by new hyper-connected devices capable of sharing high-resolution audio, images and video over the network, thanks to the enhancement and efficiency of telecommunications networks that support the fast transfer of this huge amount of data.
This new mode of communication, widely used and appreciated especially by the younger generations, has induced behavioural changes and transformations in urban areas. The playgrounds, streets and the basketball courts, once full of kids,

are now increasingly deserted. But if we could see inside the optical fibre that passes under the streets of our cities we would see a swarm of bits that, like busy ants, go from one side to the other. But where are our kids? By now they are all on social media with their heads bent over their smartphones typing cryptic messages (TVB,LOL,Tbh, ...) and sending emoticons.

This change has not gone unnoticed by criminal organisations that are always intent on controlling the territory for their illegal activities. In this new scenario, criminal organisations no longer need bullies, guns, and knives to assert their supremacy over a territory. We can say that criminal organisations are evolving into phase 2.0. Now the bosses and their henchmen do not roam our streets but open social profiles through which they generate consensus and spread criminal culture.

Alessandro Stile Computer Engineer he works as IT Project Manager at NetcomGroup S.p.A.. he has more than ten years of experience in the ICT sector. In addition, he works with public prosecutors' offices on forensic analysis of seized IT devices.

The judiciary, investigating the social profiles of several members of criminal organisations, has discovered that criminal organisations now have their own digital communication model, which has rapidly innovated with the slang used by the new generations, e.g. based on the colour of the hat worn in a party photo, one communicates to another affiliate the type of connection there is with the person being photographed. Another symbol of communication are tattoos, which, according to the part of the body on which they are done and according to the type, order one to perform one action or another (kill, intimidate, protect).

Social profiles are often used by criminal organisations to recruit new recruits by showing videos in which clan members drive around in luxury cars, attend exclusive clubs often accompanied by beautiful women. By now, criminal organisations are creating their own criminal culture by contrasting it with the culture of legality in which most of us were brought up.
Before this digital revolution, criminal organisations used pistols, rifles, and mere physical force. Today, however, they use keyboards, passwords, modern high-tech equipment, and the 'soldiers' are no longer the picciotti with the coppola
but hackers and computer experts. The control of financial market flows, the theft of sensitive data, and the revolution in communication are just some of the aspects that are emerging from this new hybrid of crime and technology.

Thanks to digital manpower, criminal organisations are able to conduct illicit activities worldwide (worldwide web). We are witnessing a progressive increase in cybercrimes and this shows us that no one is excluded from the evolution of digital communication, especially those organisations that make communication the means to control spaces and people. Using cryptocurrencies, criminal organisations move huge sums of money by trafficking anonymously in weapons and drugs. We can conclude by saying without a shadow of a doubt that technology is changing the face of criminal organisations, even those linked to ancient family traditions such as the 'ndrangheta', the Mafia and the Camorra.

4TH TRANSNATIONAL MEETING OF THE SCICO+ PROJECT AT THE NAVET SCIENCE CENTRE, SWEDEN

by Rosa Procolo

The fourth transnational meeting of the SCICO+ project took place on 13 and 14 June 2024 at the NAVET Science Centre in Borås, Sweden.

SCI-CO+ is an international project funded by the European Union's ERASMUS+ programme involving eight organisations from five European countries:

· **Ireland**
o Trinity College Dublin

· **Italy**
o IDIS City of Science Foundation
o District DATABENC
o University of Naples Federico II
o Digital World Foundation

· **Romania**
o Polytechnic University of Bucharest

· **Spain**
o Ciencia Viva

· **Sweden**
o Sjuhärad Municipal Association - Navet Science Centre

The aim of the SCI-CO+ project is to help fill a gap in the current landscape with interdisciplinary theoretical and practical training for those wishing to pursue a profession in the field of museum science communication.
During the first day of work, under the coordination of Alessandra Drioli, Head of the Science Centre at Città della Scienza and PM of the project, the final details of the training project running from next autumn and the definition of the volume to be published by 2024 were finalised.

A visit to NAVET with its many interactive educational experiments and a social dinner concluded the day.
The second day saw a session entitled 'Digital Skills in a changing world - the future direction for science centres and science museums with a focus on digital tools', with the significant participation, both in person and remotely, of stakeholders who expressed their views on the central themes of the SCICO+ project.

The meeting kicked off with the launch of three professional development courses that will be held starting in September. The first two are aimed at professionals in the field and high school teachers of scientific and technical subjects, and the third at researchers to provide them with scientific communication skills as part of the university's 'third mission'. The latter is based on the reflection that for the promotion of scientific citizenship, it is becoming increasingly necessary nowadays to equip those working in research with appropriate communication skills and abilities to facilitate the socialisation of their research.

Rosa Procolo
Project manager, Area Projects and Teaching Laboratories STEAM

5 - 9 OCTOBER 2024

CHICAGO - USA

NEUROSCIENCE 2024

With more than 30,000 participants each year, the annual meeting of the Society for Neuroscience (SfN) is the largest neuroscience conference in the world. This year will be the 54th annual meeting of scientists and clinicians who will come together to share new ideas and research focused on understanding the brain and nervous system.
This year's event takes place in Chicago, USA, and while the programme has yet to be revealed, it is guaranteed to be packed with fascinating talks, workshops, abstracts, poster presentations and more, with content from leading neuroscientists from around the world.

Registration is not yet open, however you can subscribe to the mailing list to receive regular updates on the event and be informed when tickets go on sale.
Visit the website for the latest information!

https://www.sfn.org/meetings/neuroscience-2024

14 - 16 OCTOBER 2024

PISA - ITALY

27TH INTERNATIONAL DISCOVERY SCIENCE CONFERENCE 2024

The Discovery Science 2024 conference provides an open forum for intensive discussions and the exchange of new ideas among researchers working in the area of Discovery Science. The focus of the conference is on the use of Artificial Intelligence, Data Science, and Big Data Analytics methods in science. Its scope includes the development and analysis of methods for discovering scientific knowledge from machine learning, data mining, intelligent data analysis, and big data analytics, as well as their application in various domains.
The focus will be on topics including cybersecurity, computational creativity, and network analysis that, among other areas, contribute to the research and development of scientific branches such as physics, biology, and social and environmental sciences.

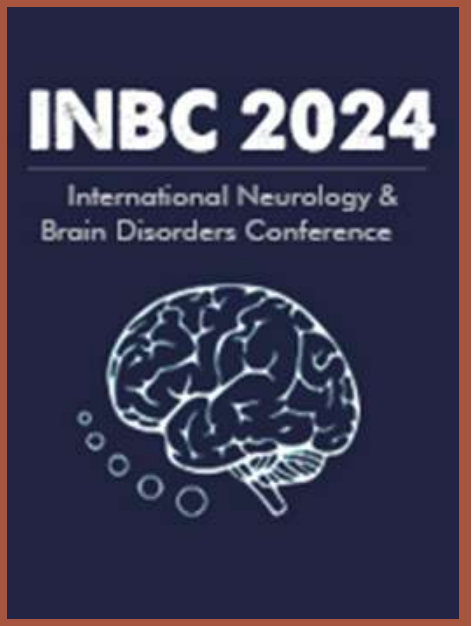
http://ds2024.isti.cnr.it/index.html

21 - 23 OCTOBER 2024

BALTIMORE - USA

INBC 2024

Magnus Group is immensely proud to present the "10th International Conference on Neurology and Brain Disorders" (INBC 2024), a globally acclaimed conference that has been a cornerstone for neurology professionals worldwide for the past seven years. We extend a heartfelt invitation to delegates from around the world to gather once again at this hybrid event, scheduled for 21-23 October 2024, in Baltimore, Maryland, USA, and virtually.
This hybrid mode allows participants the flexibility to engage in person in Baltimore, MD, USA, or virtually from the comfort of their home or workplace. Under the enlightening theme 'Neuroscience Unveiled: Decoding the Mysteries of the Brain', the conference is designed to bring together distinguished scientists, researchers, academics, neurologists, healthcare professionals, surgeons, nurses, healthcare workers, pharmacists and industry icons. Together, they will explore the latest innovations, trends, and challenges in the field. The rapid integration of new technical capabilities has significantly driven the evolution of neuroscience, with the pace of development accelerating over the last decade. The aim of this conference is to generate innovative treatment ideas for the benefit of people struggling with various brain disorders. With keynote sessions, oral and poster presentations, the symposium will present cutting-edge research in every subspecialty of neurology and brain disorders. It offers a valuable opportunity to reconnect with colleagues globally. The main objective is to raise awareness of appropriate mental health care, highlight the risks associated with improper treatment and explore viable treatment options for brain disorders. Our conference fosters an ecosystem to communicate research findings to the appropriate audience, pushing forward innovations for the betterment of society. We sincerely hope to welcome you to INBC 2024, contributing to the collective quest to advance knowledge and solutions in the realm of neurology and brain disorders.



https://neurologycongress.com/

24 OCTOBER NOVEMBER 2024

GENOA - ITALY

SCIENCE FESTIVAL

The Science Festival is one of the leading events for the dissemination of scientific culture and has become an international benchmark over the years.

Scientists, researchers, popularisers, artists, authors, as well as scientific institutions, associations and companies, meet the public so that science can be touched, seen and understood without boundaries, in an open discussion free from an academic approach.

Exhibitions, meetings, workshops, shows, lectures and much more have made it possible, since 2003, to observe and interact with science from different disciplines and nuances. Each edition is also characterised by a key word: a fil rouge that provides orientation and interpretation from a clear and intriguing perspective of the more than 300 events on the programme.

A festival that celebrates the wonder of science and, in the meantime, showcases the beauty of Genoa, the perfect cultural backdrop for the Festival. A city that has become a world centre of technological innovation thanks to its solid roots, industrial skills and aptitude for new perspectives, but also an extraordinary city of culture, art and tourist attractions.

https://www.festivalscienza.it/

30 OCTOBER - 1 NOVEMBER 2024

MELBOURNE - AUSTRALIA
AUSBIOTECH '24

For over 38 years, the AusBiotech conference has been the premier international meeting place for the Australian life science community. Biotechnology continues to unlock vast potential to improve human life.
On behalf of the entire team, our sincere gratitude to more than 1,200 people who attended the AusBiotech 2023 conference held in Brisbane. Your attendance and dedication to the advancement of biotechnology made this event a resounding success - and if you were unable to join us this time, there is always 2024 in Melbourne to look forward to.
Throughout the conference, the level of engagement in the various sessions, panel discussions and networking opportunities underlined our collective commitment to excellence in biotechnology. The many stimulating discussions were instrumental in shaping the discourse and fostering collaboration within our scientific community.
Events such as AusBiotech 2023 act as catalysts for innovation. We support our collaborative mission to drive advances in biotechnology. If you landed here, you are also an essential part of Australian biotechnology.
Are you curious to witness the journey of an event from its beginning to its zenith, and then gracefully disappear, almost as if it was never there? Watch our entire conference journey encapsulated in 90 seconds and be sure to join us in 2024 to experience more biotechnology magic.

https://www.ausbiotechnc.org/

8 - 10 NOVEMBER 2024

ROME - ITALY
XXVI AIOM NATIONAL CONGRESS - EYE ON THE FUTURE: TOWARDS THE SECOND

Even in 2024 we will try to tear open the canvas that hides the future from us, as in a Lucio Fontana painting, and look with confidence and optimism at the advances in diagnostics and therapy that are gradually changing the face of our discipline for the better. From the ability to probe the infinitely small in order to identify with ever greater precision the best therapies for those who are ill, to the maturation of pharmacological research that seems capable of bringing to synthesis the therapeutic revolutions of the past decades (radiotherapy, chemotherapy, hormone therapy, molecular-targeted drugs and immunotherapy) by producing new drugs that, we hope, will do more and more harm to cancer and less and less harm to patients. But, much as I appreciate all this, as I write this invitation I can not ignore how and how much the efficiency of the pathways of diagnosis and treatment for cancer patients in our country is also linked to factors external to AIOM, national and international, on which we must keep our eyes open. Even when it seems that these are matters beyond our medical profession. We all know that progress loses much of its beauty if it does not reach the patients who need it. On the contrary, it takes on the unpleasant appearance of wasted opportunities, of rights told but not guaranteed to all. I am convinced (and I hope many of you are with me) that the Italian National Health Service is among the best in the world, but I believe just as firmly that it needs to be maintained and defended. We will talk about these beauties and these necessary attentions together in Rome in 2024. With the young oncologists who now make up the majority of our members, with the nurses who share our work on a daily basis, with the patient associations who help us to keep the bar of our mission straight, and with all those who make an irreplaceable contribution to our research.

https://congresso.aiom.it/

18 - 20 NOVEMBER 2024

ROME - ITALY

VOLT – VITAL MONITORING & ULTRASOUND

VOLT is the only international scientific congress entirely dedicated to point-of-care ultrasound and other advanced life monitoring for neonatal and paediatric intensive care.
Reaching its 6th annual edition, the congress was attended by several hundred participants from over 40 countries and featured contributions from key opinion leaders in the field.
Speakers are chosen on the basis of their publication track and their experience as lecturers in order to enhance the teaching experience for participants. The congress also offers the opportunity to present short original works as oral presentations and, in fact, has become a regular event for people who use ultrasound and vital monitoring for research and clinical purposes.
The Thesis edition is even expanded with the participation of several KOLs from America and Europe and pre-congress and master classes.

https://www.mcascientificevents.eu/volt/

2 - 3 DECEMBER 2024

KUALA - MALAYSIA

INTERNATIONAL CONFERENCE ON SCIENCE & TECHNOLOGY

International academic conferences promote the international dissemination of knowledge and the development of transnational academic fraternity. Participants come from different backgrounds and countries. They share their research, experiences and informally create lasting bonds.
It has been commonly observed that people lack the motivation and confidence to participate in international events, basically due to self-made or cultural inhibitions.

The international conference is a global event that brings together experts, researchers, educators and even policy makers to discuss and share the latest research and innovations in the fields of science, technology and mathematics (STEM), with a special focus on their role in sustainable development

The aim is to stimulate interdisciplinary collaboration and promote innovative solutions to global challenges related to sustainability, environment and climate change. The conference aims to create a platform for dialogue and exchange of knowledge that can drive towards a more sustainable and resilient future!siliente!

https://straweb.org/conference/kualalumpur-icst-02-03-dec-2024~about

18 OCTOBER - 6 DECEMBER 2024

NAPOLI, SALERNO, BENEVENTO, CASERTA, AVELLINO - ITALIA

XXXXXXVIII EDITION OF **FUTURO REMOTO**

CO-SCIENCE

Futuro Remoto was founded in 1987 and is the first European event for the dissemination of scientific and technological culture. Since then, an enthralling journey has begun, one that has lasted 38 years in which Italian scientific research, and not only, has told the general public about various successes, countless challenges and, above all, the beauty of knowledge. This year Futuro Remoto - to be held from 18 October to 6 December 2024 - chooses the highly topical theme of CO-SCIENCE. Investigating the true and the false, order and disorder, right and wrong... Futuro Remoto will do this by narrating and experimenting with the vanguard of science and its impact on the quality of life, the environment and social well-being, involving all fields of knowledge and reflecting on the concepts of responsibility, awareness and ethics. The relationship between science and society is central and today more than ever necessary to address the great contemporary challenges.

The programme of this edition is very rich, realised with the support of the Campania Region, the co-organisation of the seven universities in Campania, the partnership of all the main national research bodies and the presence of many international realities.

There are over 400 events and they can be viewed on the Futuro Remoto website: www.futuroremoto.eu.

They range with innovative and engaging proposals in all subject areas, from astronomy to volcanology, botany, mathematics, art and literature to physics, chemistry and biology, design, neuroscience, medicine, geology and much more.

Many - therefore - are the initiatives that will interpret the theme of CO-SCIENCE and this time too, the public will be able to interact, experiment and discover the latest frontiers of knowledge thanks to the valuable presence of scientists, researchers and experts.

Big news is the regional dimension of the XXXVIII edition of FUTURO REMOTO

The XXXVIII edition of Futuro Remoto takes on a regional dimension with events throughout the Campania region, starting in Naples and continuing in Salerno, Benevento, Caserta and Avellino.

NAPLES - Friday 18 to Sunday 20 October 2024
Workshops, lecture shows, exhibitions and many games and escape rooms on the environment, nature and sustainability, the human body, but also on the principles of physics and astronomy await you in the Science Village that will be set up in the City of Science.

SALERNO - Friday 8 November 2024
Futuro Remoto makes a stop in Salerno, where two hubs of activity will be the city centre of Salerno and the University Campus of the University of Salerno. The campus will offer the story of the research that takes place on a daily basis between science and co-science of the 17 UNISA Departments together with other cultural and research realities in the area, in an extraordinary ecosystem of knowledge, skills, collaborations and connections. Interactive workshops for all ages, from the latest applications in the medical field to biotechnology and robotic engineering, spectacular demonstrations from chemical action to drones and virtual reality tell of the latest frontiers of scientific research. In the city centre, a series of meetings and conference shows enliven the symbolic places of the area.

BENEVENT - Friday 22 November 2024
The University of Sannio and the entire city of Benevento are involved in this special edition of Futuro Remoto dedicated to students of all levels. Many venues in the city will host a rich programme of activities, from workshops dedicated to innovation, sustainability & ethical cbo, to those on Co-Science & Crime, to those on energy diagnosis and efficiency, ending with the conference show "La Balena "Giuliana" ed il Dinosauro "Ciro": Co-scienze tra passato e presente".

CASERTA - Friday 29 November 2024
Caserta, with its extraordinary Belvedere di San Leucio, will host the fourth stage of the event, with a special focus on design and Made in Italy, innovation and sustainability. The centrepiece of the activity will also be the Officine Vanvitelli spaces of the University of Campania Luigi Vanvitelli, which will open to the public with their beautiful spaces and tell the story of the many research projects underway. There will also be events and activities in the city centre of Caserta with conferences, shows and visits.

AVELLINO - Friday 6 December 2024
Futuro Remoto's journey through Campania concludes in Avellino, with a programme that also involves many charming city venues that will open to the public with a packed programme of events dedicated to environmental, health and wellness issues.

https://www.futuroremoto.eu/

> La cosa importante è non smettere mai di fare domande

Albert Einstein

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