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THE NATIONAL
ROBOTARIUM
PEOPLE CENTRED :: INTELLIGENCE DRIVEN

2021 :: HIGHLIGHTS

2021 has been an incredible year at the **National Robotarium**, filled with exciting discoveries, public engagement, innovation and growth - from running schools competitions to seminal research into how robots can support assisted living in care homes, we have worked with phenomenal industry partners and spread the word about the positive impact robotics and AI can have on society. As we continue to forge partnerships and widen participation as an international leader in robotics and AI, we are proud of the work that our world-leading researchers, students and partners have advanced this year.

We look forward to future collaborations but for now take a look back at some of our 2021 highlights!

CONSTRUCTION KICKED OFF



In March, construction began on the new National Robotarium building. A partnership between Heriot-Watt University and The University of Edinburgh, based at Heriot-Watt's Edinburgh campus, the £22.4 million research facility will be the largest and most advanced of its type in the UK.

Designed with sustainability and energy efficiency at its heart, the 40,000ft² building will house three core research and development areas, with bespoke facilities for Robotics & Autonomous Systems (RAS), Human & Robotics Interaction (HRI) and High Precision Manufacturing. World-class specialist facilities for the advancement and testing of research will include dedicated laser labs, an autonomous systems laboratory, and a living lab for trialling technology in a realistic home setting.

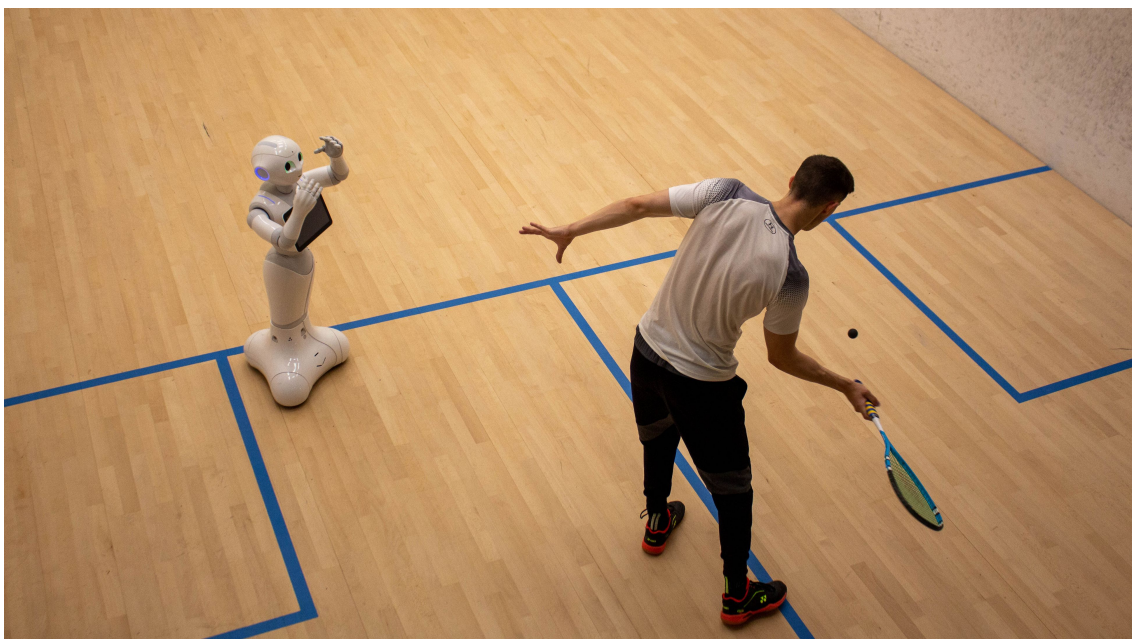
Read more about the centre's facilities and eco credentials in **AZoRobotics**.

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Since construction kicked off in March, extensive progress has been made to the National Robotarium building – with windows and walls up, the high-tech facilities are now underway!

Working with Robertson Group, we opened our doors to the public who had a sneak peak of the site in October. We look forward to opening our doors to everyone in 2022 but for now **check out our timelapse** of the construction so far.

HEALTH AND SOCIAL CARE



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during **BBC Click's** recent trip to Edinburgh.

In collaboration with industry partner RacketWare, the National Robotarium's robotic coaching project is exploring how robotics can improve athletic ability, performance and motivation and could have future applications helping to coach patients to carry out physical therapy at home.

Watch back to see the robotic squash coach in action.



This year, we continued to make strides in developing robotics and AI to support our partners in the health and social care sector.

September saw the success of our pilot scheme in partnership with Blackwood Homes and Care in Scotland, where health practitioners used telepresence technology to carry out check-ups on care home residents remotely.

Read the full story in The Times.

HAZARDOUS ENVIRONMENTS



In June, BBC One covered news of our new 'Spot' robot dog from Boston Dynamics, which is helping our researchers and industry partners to investigate how machines can support people working in hazardous environments such as oil platforms and refineries.

The telexistence technology allows humans to experience surroundings without actually being there, by adopting the robot's senses remotely. The research underscores how machine technology can be a gamechanger when it comes to carrying out hazardous tasks.

Check out the full story in Sky News.



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strategic projects within the National Robotarium, secured £2.5 million of additional funding to expand research into robotics to make the inspection and repair of offshore infrastructure safer.

Announced in June, the funding from UK Research & Innovation will fund collaborations with industrial partners to explore the deployment of Industrial Internet of Things (IIoT) sensors and will also be used to explore applications in other sectors.

Read more in Robotics and Innovation.

PUBLIC ENGAGEMENT



In November, we launched our biggest public outreach scheme to date. 1,000 pupils from 39 primary schools entered our competition to name our new 'Spot' robot dog from Boston Dynamics.

BBC science journalist and broadcaster Vivienne Parry chose Aberlady Primary School's name 'M.A.R.T.I.N.' as the winner thanks to its insightful acronym which can encourage discussion around the fundamentals of robotics: Mechanical, Artificial, Remote, Technological, Intelligent, Ninja.

The accompanying drawing competition challenged students to come up with a design for a robot that could help humans in the future. The winning 'Fire Bot' and 'Care Taker Bot' from primary school roboticists were equipped with specialist tech to help out in hazardous environments and support the social

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encourage them to consider a career in this field. The winners even found fame on CBBC's Newsround!

If you missed it, **take a look now.**

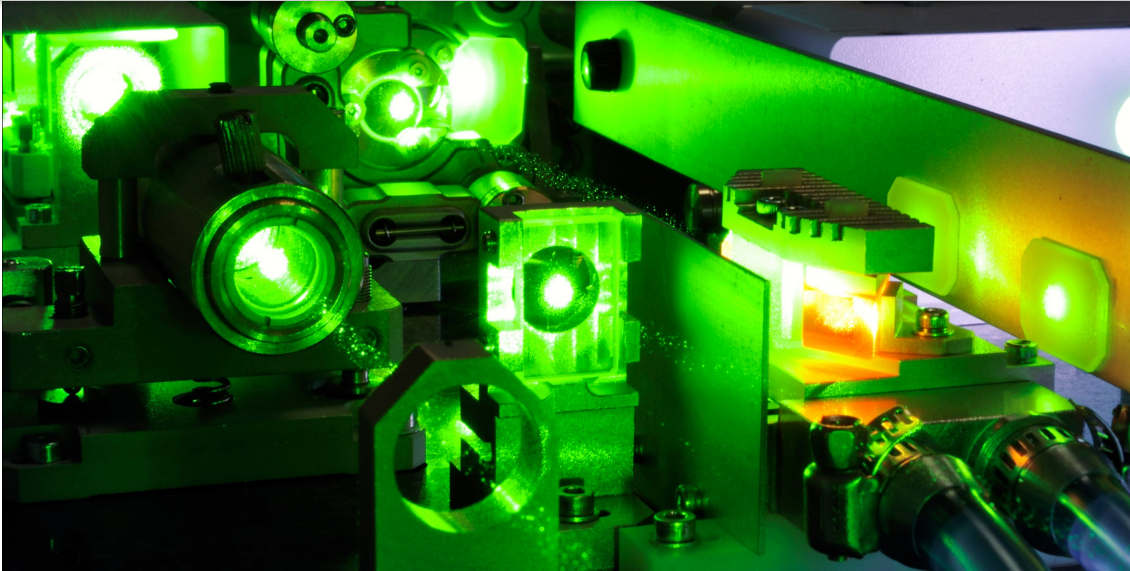


In July, our resident psychologist Professor Thusha Rajendran explained why coding should be included in the curriculum.

Professor Rajendran emphasised why learning to code can be beneficial to all students – whether they are more interested in STEM or the humanities – and why we must encourage young minds to take technological advancement forward.

Check out what Professor Rajendran had to say.

LASERS

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One of the core research areas of the National Robotarium is laser-based manufacturing. An industry expected to grow to £4.1 billion worldwide by 2025, our researchers are pioneering techniques that could transform the laser processing market in the UK and around the world.

In July, we announced the latest of these innovations: laser beam shaping. Supported by £586,000 funding from EPSRC, National Robotarium researchers have developed a technique to shape lasers to the precise shape and specifications of products, helping to increase efficiency and boost production.

Read more about this paradigm shift.



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National Robotarium, spoke to The Engineer in July about laser-based manufacturing and the innovative techniques that make processes quicker and more precise.

From laser sculpting to laser cleaning, Dr Carter provided a guide to the essential role lasers play in modern production and explained how the UK could lead the way globally in high value manufacturing by adopting technologies developed through application-led research.

Read the full article in The Engineer.

WELCOMING OUR NEW CEO



In September, Stewart Miller was appointed as CEO of the National Robotarium. Stewart sat down with The Scotsman to discuss his ambition to lead the way in building a reputation for the National Robotarium as a global hub of excellence for AI and robotics.

He expressed his excitement for the opening of the National Robotarium building which will accelerate innovation and world-class research to provide industry and the public sector with ground-breaking solutions for real-world challenges.

Read the full interview in The Scotsman.

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plans to slow down in 2022.

With the opening of our new building, we'll be able to drive forward our collaborative work in our state-of-the-art facilities as well as host open days and other events in our education hub to engage young people and communities in robotics and AI research.

We look forward to expanding and deepening our work with more industry partners. Our ambition to engage the public and young people in AI and robotics research will continue to grow.

From all of us at the National Robotarium, we would like to **thank you** for all your support and engagement in our work throughout 2021 and wish everyone **health and happiness for the holidays**.

SPREADING THE WORD

We have started posting on our social channels. If you are able to support our engagement and grow our following, please visit @NRobotarium on Twitter or @The National Robotarium on LinkedIn and tag us in relevant news and content.



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