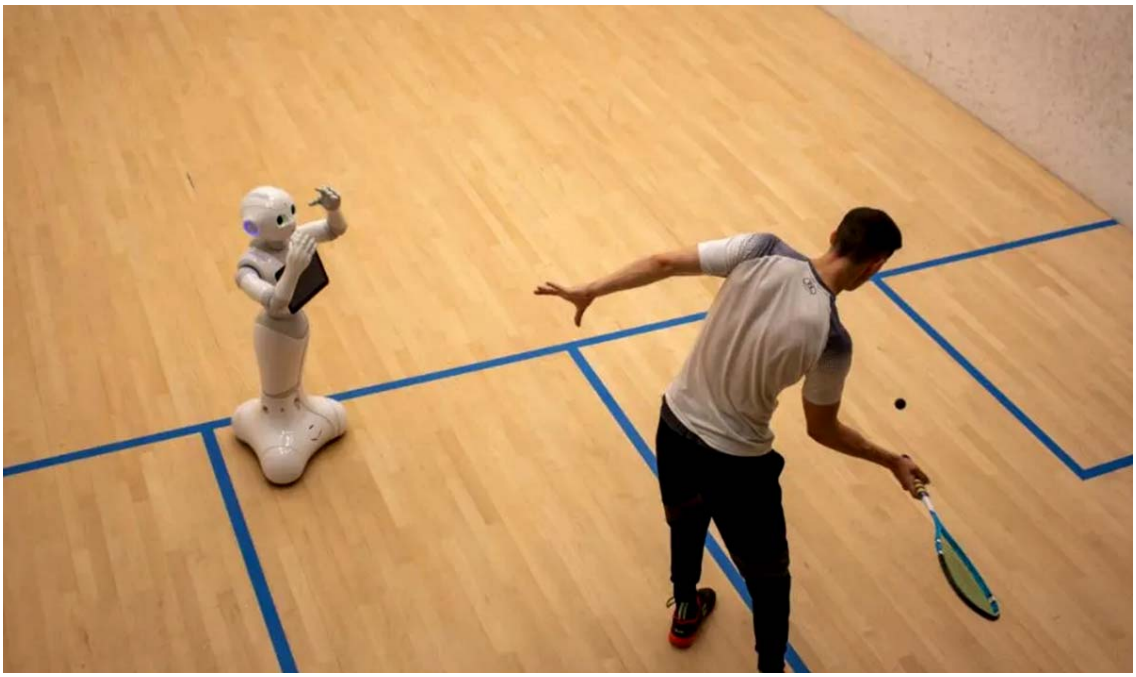
THE NATIONAL
ROBOTARIUM
PEOPLE CENTRED :: INTELLIGENCE DRIVEN

SPOTLIGHT ON :: ROBOTIC SQUASH COACH



A social robot from the National Robotarium has been taking the media by storm this month after becoming the world's first robotic squash coach! The EPSRC-funded PhD project explores whether performance and motivation levels can be increased during a player's solo practice using robotic coaching support.

The team is conducting research on court between a real player practising a variety of shots and technical aspects of their swing, a motion tracking sensor attached to the squash racket to monitor swings and speeds of hitting the ball, and a robot receiving this data and interpreting what coaching feedback to provide.

Supported by Squash Scotland and delivered in partnership with industry partner Racketware, the learnings will be applied to stroke patients to support rehabilitation outcomes.

commented: “Students studying with the National Robotarium have the opportunity to apply their knowledge to real-world problems, working on new innovations through industry-led partnerships like this. As well as accelerating their skills, their research is actively shaping the future of the field.”

Watch the research in action on STV

WATCH HERE

NEWS ROUND UP

This month, we welcomed our new robot from PAL Robotics for the international SPRING project. This groundbreaking healthcare project is exploring ways that humanoid robots can reduce anxiety amongst patients waiting for appointments in hospital waiting rooms. Working towards the first multi-party conversation, the robot is already programmed to chat about topics in the news, and can even play a quiz game!

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Offshore wind is rapidly growing as a valuable tool for decarbonising our energy systems but what role can robotics play in managing our ocean infrastructure? Robotics technologies can support human operators with daily maintenance, making it safer and more efficient for technicians to complete tasks in challenging environments, but they also bring environmental benefits of their own.

Professor David Flynn from Heriot-Watt University spoke to Power Technology to explain how robots can help protect marine life while maintaining offshore turbines. Our key partner ORE Catapult highlights the potential for robotics to reduce operational emissions.

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Professor Subramanian Ramamoorthy from the University of Edinburgh has been hard at work helping to judge the prestigious Tech Nation Applied AI 3.0 programme. Applied AI is Tech Nation's first growth programme for Artificial Intelligence and supports the UK's most promising founders who are applying AI in practical areas and creating real-world impact.

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CENTRE FOR DOCTORAL TRAINING :: Student Spotlight

Paola Ardón Ramírez,
PhD Student: Affordance learning and reasoning applied on tasks for robot grasping

What does your research entail?
People can very naturally grab a glass to drink water, then regrip differently to pour the water or to clean the glass. The concept of doing these different actions with an object is known as affordances. My research includes learning robotic grasping techniques by detecting object affordances for more natural manipulation tasks. This research will be essential when we introduce robot companions to domestic homes. To reach my research goal, I use a combination of machine learning and human-robot centred techniques that allow us to test how efficient our algorithms are but also how comfortable people are when a robot performs manipulation tasks.

How do you expect your research will impact society?
I expect my research to be a tool that bridges what we know nowadays as robotic manipulators – mostly for industrial purposes – and what people can actually have at home as an assistive agent. I started my research with the hope that, one day, those with assisted living requirements will be able to live independently at home with robotic support.

What's the biggest challenge you face in your research?
As for most of the robotic problems nowadays, the biggest challenges are obtaining the right data to train the system and having versatile hardware. Both are important when designing an adaptable system that is not limited to performing in specific environments or with specific objects. Nowadays, these limitations are being dealt with by trying to correlate data from different sources. However, the results are not yet at a stage where robots are ready to be deployed into our homes.

How did you become interested in robotics?
I first started to explore robotics in an industrial context, where there was the

home. The reality is that, for many, it's really hard to get help at home and they end up moving to a care facility. I believe that, with the right technology, we can give many more people the opportunity to live independently and, as such, make a positive impact on society through robotics.

Young visitors to Heriot-Watt University meet a robot during the 2017 Year of Robotics

Bitesize

Our recent schools competition saw more than 1000 pupils draw a robot of the future while 79 classes got their thinking caps on to name our new SPOT robot from Boston Dynamics. Look out soon for announcements on the winning entries!

If you have a budding roboticist at home, our article on BBC Newsround's website provides a good introduction to our work and more about our new facility in Edinburgh which will open in 2022!

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YOUR CHANCE TO GET INVOLVED

FREE EVENT: On 8th September, Professor Subramanian Ramamoorthy from the University of Edinburgh will be participating in a virtual panel discussion on Autonomous Vehicles: Trust, Commercialisation and Technological Innovation at OxTech Fest, organised by Oxford Brookes University. Tune in at 15.40-16.30.

The seventh annual conference for the EPSRC Centre for Doctoral Training in Robotics and Autonomous Systems will take place virtually on Friday 1st October. This invite-only event will feature a range of poster presentations from CDT students, keynotes from renowned academics and industry booths.
MORE HERE

If your organisation or school would like to get involved in the work of the National Robotarium, whether to tackle an industry problem or engage young people in robotics research, we'd love to help!

CONTACT US

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.