

Putting technology into volleyball practice

30 / 04 / 2019 | [Rense Kuipers](#)

Since practice makes perfect, researchers Dennis Reidsma, Robby van Delden and Dees Postma from the Human Media Interaction (HMI) department are working on a project called 'Smart Sports Exercises'. The goal: creating an interactive volleyball floor that helps players and coaches improve their game.



What is Smart Sports Exercises about?

Reidsma: 'Through feedback, you can steer the behaviour of people playing a game. We try to translate that to volleyball – specifically volleyball practice. Feedback can be either quite crass – 'Run to the X if you don't want to lose a point' – or subtle: 'You can choose between multiple options if you want to block an opponent's ball'. The goal is to train players in exercises that would be hard to do without an interactive floor.'

Why volleyball?

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Reidsma: 'The sport has a lot of advantages for our research: it's indoors, the floor isn't that big, players are on separate sides of the net and the goal of volleyball is to literally get the ball on the opposing team's floor. It's also quite easy to track the specific movements of players: using sensors, you can determine actions like jumping, turning, taking off or choosing position.'

What kind of technology do you use?

Van Delden: 'An LED floor that's pressure-sensitive, inertial measurement units to record the movements of players and a tablet to easily transfer the training exercises to the interactive floor.'

Isn't it up to the coach to help the players?

Postma: 'The floor can be an extra toolbox for the coach. It's not meant to replace a coach, but to enrich the way a team practices and plays volleyball. That way, you can enhance the players' awareness during the game.'

Reidsma: 'That's why we're looking for exercises in which a floor offers instructions that a coach isn't able to give. Imagine players having to aim their smashes at a certain goal; they have to make that decision while being airborne. At that point, you don't want to hear from your coach where you should smash the ball to. You would rather have a visual cue.'

Postma: 'To add to that: in volleyball, players are never equally divided on the court. The game has a variety of defending and attacking strategies, which all require different formations. An interactive floor can help players being more conscious about where they are standing and why.'

What is the current status of the project?

Van Delden: 'We've just started, but the technology looks promising. Researchers at the Biomedical Signals & Systems group showed that you can get a lot of valid feedback from even a simple motion sensor. Besides that, we're talking with coaches from different levels of the game. Their first reactions are positive: several of them have already come up with exercises that could benefit from an interactive floor, like balancing out teams by increasing or decreasing the size of one side of the court.'

It also helps that we've teamed up with Windesheim University of Applied Sciences, Sportservice Veenendaal, InnoSportLab and the company LedGo in this project. The Dutch national volleyball association is also eager to find out if a floor like this can benefit the sport. But we will have to find a suitable partner that wants to be the first to put a floor like this into practice.'

Reidsma: 'The duration of this project is two years, which isn't that long. But within those two years, we want to at least have actual volleyball players test different exercises on our prototype floor.'

What's your view on the potential use of this kind of technology?

Reidsma: 'It's a different approach than your average sports data research. What you usually see is researchers gathering large amounts of data that they use to help athletes to improve their performance...'

Postma: '...While we try to use technology first as a tool to improve the athletes' performance. When the technology is in place, we can start measuring the effects. A simple example of technology playing a role is carrying a smartwatch while running: you use the information on your

smartwatch to improve your personal bests. Maybe an interactive floor can influence volleyball in a good way – of course without letting the game lose its charm.'

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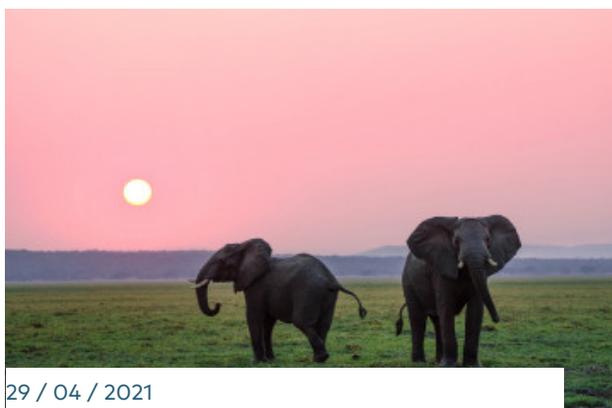
‘Unelected officials set the tone’

‘Over a pint’ is a series about science. UT researchers talk to science journalist Enith Vlooswijk about their field and the misconceptions that exist about it. Enith turns their input into writing and drawings. In this fourteenth episode: Marcel Boogers, professor of Innovation and Regional Governance.



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‘Elephants have learnt to avoid humans’



Recovering resources from waste

Due to human presence and actions, elephants only use 17% of their potential habitat in Africa. This is the main finding of a study based on twenty years of data and co-authored by Jelle Ferwerda, research coordinator at ITC.

Assistant Professor Sissi de Beer, from the UT Faculty of Science and Technology, has been awarded a grant of five million euros from the NWO Programme 'Perspective' for her research ReCoVR: Recovery and Circularity of Valuable Resources. Together with a team of researchers and companies, she aims to develop improved technologies for a more effective waste separation and resource recovery.

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