

Innovation

IET celebrates new thinking in engineering



Every November we hold our Innovation Awards ceremony to capture and promote advances in engineering – and 2018 was no different.



Illustration of Creavo Medical Technologies' biomedical sensor

Advancing cardiovascular treatment

Twenty-eight-year-old Richard Grant MIET, from Creavo Medical Technologies, won our inaugural Young Innovators award for his technical contribution to the diagnoses and treatment of heart disease.

Richard has designed a biomedical sensor which aims to get the best possible image of a heart's magnetic field to help identify cardiac problems.

“I was originally tasked with reducing the sensor weight by a minimum of 25% without reducing performance,”

Richard says.

He exceeded expectations, however, by adapting the geometry and materials of the sensor. The new design had lower weight, cost and improved performance, producing higher quality images of the heart.

Richard's design is now being used in clinical trials in the UK and USA. Next, he says, "we're going to push for increased sensitivity, increased spatial and temporal resolution, and hopefully even better models."

"Receiving an Innovation Award feels fantastic," he adds. "I was hopeful, but I wasn't sure, and it's a real feather in my cap."

Combining technologies for clean water

Given the IET's multidisciplinary membership, we champion sharing technologies across sectors. This year's Innovation Award winner in the Technology Transfer category, KP2M Limited trading as Power & Water, has combined existing processes in a new way to create a more environmentally friendly water treatment technology – Soneco®.

"Historically, within municipal wastewater treatment, phosphorus has been removed using metal salts in the form of liquid chemicals," says Kunal Patel from Power & Water. "New, more effective treatments are constantly being sought to achieve discharge targets which are ever tightening, due to the current danger to aquatic life."

Power and Water's solution, Soneco®, combines existing processes – electrolysis and ultrasound – to electro-generate PH-neutral treatment metals and meter them into the water.

"Treatment is precisely controlled through intelligent software to deliver the correct treatment dose and remove the potential impact on the environment,"

says Kunal. "The ultrasound keeps the electrode surfaces clean and evenly reactive. This maintains the electrical efficiency of the reactor and ensures minimum power consumption."



Soneco®, Power & Water's water treatment technology

The water industry is already showing interest in Soneco®, with Southern Water working with Power & Water on fully engineered solutions. "We're now looking at rolling out the technology in multiple market segments, and fully commercialising it in different applications," Kunal says.

Recognition from the IET, Kunal adds, feels "great". "It's been four years of really hard work from when we started," he says. "We're quite a new company – for us to get recognised is a huge achievement."

An evening to remember

This year's Innovation Awards ceremony brought a Brazilian Carnival theme to The Brewery, London. Finalists had the opportunity to network and showcase their work in action in an exhibition before the ceremony.

Actor and writer Sally Philips hosted the ceremony, presenting a new top prize, the IET and E&T Innovation of the Year, to **NeuroConcise** for their neurotechnology platform that translates brainwaves into control signals. NeuroConcise will feature in *E&T magazine* later this year.

Entries for the 2019 Innovation Awards open in March, with the entry deadline on 5 July. Find out how you can enter your innovation this year at theiet.org/mn-innovation