

Research driving an indoor farming revolution



Gareth Coleman
Software Developer. Credit: UKRI

Introducing Grobotic Systems

Grobotic Systems make the next generation of affordable, accurate and reliable plant growth chambers for plant science research. These aim to help scientists and farmers optimise food production using cutting-edge LED lighting, environmental sensors and Internet technologies.

Grobotic Systems and the MD Club

Dr Alexis Moschopoulos is a plant geneticist and the MD of Grobotic Systems. Having joined the MD Club in 2019, his business is already benefiting from the connections he's made.

At one MD Club event Stuart Wrigley, Operations Business Development Manager, Department of Computer Science put him in touch with the Department of Automatic Control and Systems Engineering (ACSE) and the Department of Mechanical Engineering. The company now has three masters students in Mechanical Engineering and Mechatronics respectively carrying out invaluable research.

Alexis explains:

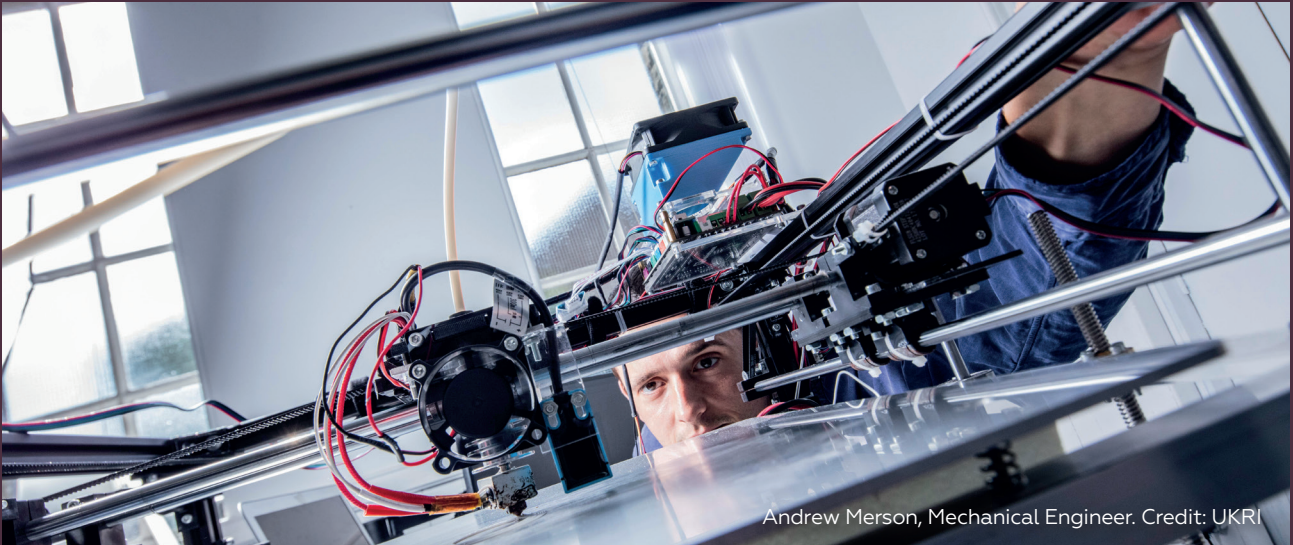
// The masters students have expertise that we don't have in house. They are carrying out research, which requires a considerable amount of time and is useful to our business."

// Having made such good connections with these departments, if there is scope for wider research in the future, we hope that this relationship can continue."

Also at a recent MD Club event, Alexis was introduced to representatives from the Sheffield Innovation Programme, which promotes business growth and is a collaboration between Sheffield Hallam University, the University of Sheffield and Sheffield City Region Growth Hub.



Alexis Moschopoulos. Credit: UKRI



Andrew Merson, Mechanical Engineer. Credit: UKRI

Through the programme he discovered a number of initiatives that can provide his business with support. These include Sheffield Hallam University's Design Futures, a product and packaging design consultancy and Venture Matrix, a work-related learning scheme. Alexis says:

// We're refining a prototype and need engineering expertise to streamline manufacturing, which is currently a labour intensive, manual process. The team at Design Futures have the expertise we're looking for. We're also hoping that through Venture Matrix, students will be able to carry out market research."

// As a new-comer to the business world, the MD Club is an excellent investment of my time. It's great to meet other managing directors and exchange experience. It's also leading to potential business opportunities as I tap into the specialist academic expertise we need."

Academic and industry collaborations

Innovating for the food production industry

Alexis came to Sheffield in 2013 to work at the University of Sheffield in post-doctoral research. His relationship with the University continues to play an important role in supporting Grobotic Systems' work.

In 2019 the company secured an Innovate UK grant as part of a collaboration with the University of Sheffield, Fraunhofer Centre for Applied Photonics and Stockbridge Technology Centre. Their research aims to revolutionise commercial indoor farming by finding the ideal growing conditions for the best crop quality and yield.

Different light colours can affect plant biochemistry including growth, flavour, nutritional value and medicinal content. With companies like Amazon buying up indoor farming facilities and significant Chinese, Japanese and US investment, it's a hot topic in commercial food production with the rush to find the best climate conditions for different vegetables.

Tapping into talent and skills

Grobotic Systems continues to provide opportunities for students from the University of Sheffield and benefits from their skills for a range of technical tasks. They've welcomed interns for fully funded studentships from the Institute of Mechanical Engineers and also through the University's Careers Service in a studentship funded by the bank, Santander.

Alexis intends to continue accessing talent through the University's careers fairs and Professional Internships for PhD Students (PIPS), which provide three-month work placements for PhD students.

Grobotic Systems also plans to tap into programmes through the Sheffield Business School at Sheffield Hallam University for support in areas which are critical to running the business such as business administration, marketing and finance.