



Inside 'Culina': the Bioreactor Room

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Students reimagine food economy at international Biodesign Challenge Summit

A team of students selected by the Hub for Biotechnology in the Built Environment, a collaborative initiative between Northumbria and Newcastle universities, will be competing as finalists for their biotech-based design project in the [Biodesign Challenge Summit 2020](#), June 15-19.

They are one of the 45 finalist teams from 12 countries who spent the semester imagining, creating, and critiquing future applications of biotechnology and its role in society.

Biodesign Challenge (BDC) is an international competition and education program that is growing the first generation of biodesigners. The team of Northumbria and Newcastle students is part of a Biodesign Challenge extracurricular program run by the two universities as part of the [Hub for Biotechnology in the Built Environment](#) (HBBE) - the world's first research hub for Living Buildings.

The HBBE team will present their project on day two of the virtual Summit, Tuesday 16 June, and compete for prizes that are awarded by an esteemed judging panel of industry, academia, and arts experts.

Two projects were submitted including [Volteria](#) which develops technology to produce electrical energy from Microbes. The finalists, [Culina](#), explore the future of food from a biotechnology perspective. The project's mission is to rethink the way we produce and consume food, developing visions for a biotechnology-based society.

Culina seeks to pave the way to a new food economy, in response to global food insecurity amplified by the COVID-19 pandemic. The finalist project was developed by a truly multidisciplinary team: Dawoon Jeong and Adrienne Dy are both currently completing an [MA in Multidisciplinary Innovation](#) at Northumbria University. Pippa McLeod-Brown is studying MA Architecture and Emma Riley is a Biotechnology & Biodesign MRes student, both at Newcastle University.

Emma Riley explains: "The project recognises the importance of collaboration between scientists and designers, and the need for multidisciplinary relationships to develop ecological solutions."

"*Culina* re-envision the architectural and social construct of the kitchen by combining traditional cooking processes with modern biotechnologies. With the kitchen as the catalyst, we use nature as a core design tool to create a more vibrant and sustainable way of living in the built environment." Pippa McLeod-Brown adds.

"As multidisciplinary innovators, we used design to interrogate the status quo and propose alternative futures. COVID-19 gave further impetus to reimagine the food economy and design it around self-sufficiency and symbiosis,"

explain Adrienne Dy and Dawoon Jeong.

An opportunity to impress in an emerging field of research

This year's virtual Biodesign Challenge Summit will feature student project videos and live Q & As between the team and Summit judging panel, which consists of over 50 leading entrepreneurs, curators, artists, designers, and scientists.

Speakers include David Benjamin, Founding Principal of The Living and Associate Professor at Columbia GSAPP, who will deliver the keynote, and Annalee Newitz, award-winning science fiction author and journalist, who will chat with Torie Bosch, Editor of [Future Tense](#). Both speaking sessions will be held on Friday 19 June.

Teams will compete for awards including the grand prize, the Glass Microbe which is passed down each year from team to team. This year's sponsored prizes include the MANA Prize for the Future of Beauty and the Science Sandbox Prize for Public Engagement, sponsored by the Simons Foundation.

Past Biodesign Challenge teams have turned their projects into venture-backed companies and have collectively raised over \$2.5 million in funds. Their projects and designs have won awards including the H&M Global Change Award and the National Geographic Chasing Genius Award. Previous works have also exhibited at museums, galleries, and design festivals around the world, including Dutch Design Week, NYCxDDesign, London Design Festival, the Tech Museum, to name a few.

[Dr Meng Zhang](#), Senior Lecturer in Microbial Biotechnology at Northumbria University and one of the academic leads of the HBBE, said: "We are very proud of our HBBE Biodesign Challenge teams, which consist of students from both Newcastle and Northumbria universities, from architects to biologists. They have worked on the project as an extracurricular activity which, during Covid-19, has been extremely challenging. Their work pushes disciplinary boundaries and the submitted work is a testament to the talent and commitment of our students."

HBBE Co-Director and Professor of Emerging Technology at Newcastle

University, Martyn Dade-Robertson, said: “We expected that once the lockdown was announced that the groups, who were already facing pressures from their own courses, would decide to drop out but they fought through. Our selected finalists took on Covid-19 as part of their motivation and found new ways of working together. They exemplify what we are trying to do with the Hub for Biotechnology in the Built Environment and represent a bright future in challenging times.”



[Watch video on YouTube here](#)

The team’s *Culina* project is available to view on the [Biodesign Challenge page](#) of the HBBE website, as well as the team’s [YouTube channel](#).

Those interested in learning more about the Hub for Biotechnology in the Built Environment should visit the Hub’s website: <http://bbe.ac.uk/>

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