



UK Research
and Innovation

The impact of UK-US research collaboration

By working together, researchers from the UK and US have been able to maximise the impact of their work – from improving health outcomes to reviving a lost language and helping people find justice after national atrocities.

“Real communication is all about interacting and personalities and jokes and teasing, which requires speed and intelligence in the system.”

People with speech impairments rely on computer voice systems in order to interact with the world, but many are slow and clunky. A team from the UK and US joined forces to create CONTACT, a computer program that allows for faster, more natural and interactive talk.

“Air turbulence is the leading cause of injury to passengers and flight attendants.”

A trio from the UK and US have developed an algorithm to predict and allow pilots to navigate air turbulence better. This is now being used as part of the US Aviation Weather Service’s turbulence forecasting system and will soon be implemented internationally.



Image courtesy of Cass Productions



“Mass poisoning on an unprecedented scale.”

More than 20 million people in Bangladesh are exposed to toxic levels of arsenic in the groundwater. Researchers from the US and UK have identified that water pumped from depths of over 150m is considerably safer. They are now seeking to understand this process better – to prevent further contamination – and developing mechanisms to quickly and safely purify water from shallower tubewells.

Image courtesy of Sonia Hoque/REACH

Toxicology experts from the US and UK have jointly developed a step-by-step approach to assess the different impacts that a drug or chemical will have on humans compared to lab animals. This has shaped decision-making at institutions such as the World Health Organization and is informing the next generation of non-animal assessment methods.



Image courtesy of USDA



Economists from the US, UK, and Finland have joined forces to study how countries can successfully navigate a deep recession. They found that the key is to manage expectations of households and firms, requiring central banks and policy makers to rethink their rational economic models to account for a nation's sense of optimism or pessimism

Image courtesy of David Shankbone

Alzheimer's disease accounts for 60-80% of dementia cases, and currently has no known cure. Combining expertise in biology, mineralization, and synchrotron techniques, researchers from the US and UK studied the accumulation of iron and calcium compounds in the brain tissue of Alzheimer's patients. This is a vital step in managing factors that make cells more vulnerable, and ultimately to protecting people from the disease.

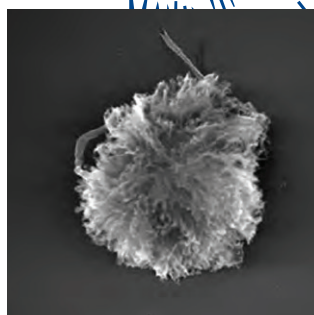


Image courtesy of Plascencia-Villa et al 2016, Scientific Reports

Through combining unique expertise in nanotechnology, liver disease and array-based sensing, researchers in the US and UK developed a new method to detect liver damage. This test is non-invasive, easy to administer and provides results within half an hour. This could allow those at risk to monitor their liver's wellness actively – rather than waiting until significant damage has been done and symptoms appear.

“One of the advantages that we have through a UK-US alliance is a larger international impact.”

A UK and US joint effort has created a database of transitional justice mechanisms, which countries use in the aftermath of civil conflict and human rights atrocities. This has provided policy makers, including at the UN and World Bank, with an evidence base to inform reconciliation efforts around the world.

A three-way transatlantic collaboration between social scientists, artists and designers, and synthetic biologists resulted in the creation of some unusual artefacts – from cheese made from armpit bacteria to a cyanobacteria that digested computer circuit boards. This has challenged scientists to be more imaginative in their approach, whilst spurring public engagement with synthetic biology.

Image courtesy of Alexandra Daisy Ginsberg



Image courtesy of US Forest Service

A US researcher studying Sudden Oak Death contacted a UK academic focusing on the spread of the bubonic plague. Whilst these two diseases might seem very different, there are similarities in how they are spread. Together, the two academics developed a model to predict the spread of the plant disease. This has informed forestry practices in the US and UK and could potentially be applied to the study of other emerging diseases.

“If you see an emerging disease, you'd better jump on it fast.”

Kiowa is a unique Native American tribal language, but with only 30 fluent speakers today, its elegant linguistic traits and the heritage surrounding it are being lost. Linguists from the UK and US have collaborated to understand Kiowa better, working closely with the community to fuel interest in the language and create resources for its preservation.



Image courtesy of Laurel Watkins