



VistaMilk

MAKING AN IMPACT

Agriwall: a surface to extend the wireless communication range of energy constrained sensing devices
Nouman Ashraf

Although energy harvesting and wireless power transfer (WPT) have been explored for powering miniaturised and scattered sensors, many barriers remain preventing widespread adoption.

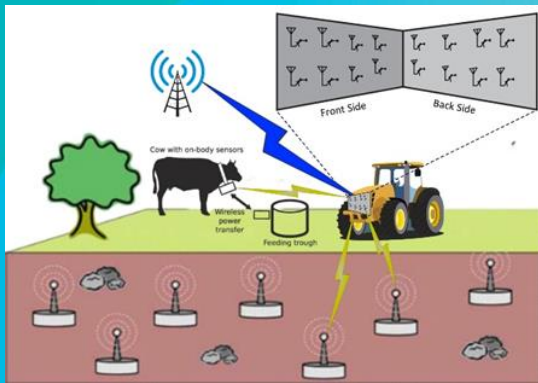


Figure 1: AgriWall Use

One issue is that we cannot wirelessly transmit sensing data from a huge number of scattered sensors to a target device situated a long distance away. This is due to the low energy efficiency of WPT technology and hence the limited energy available at sensing devices. Researchers at TSSG looked into the problem and wondered if rather than focusing on the transmitters, what if they could extend the communication range by building AgriWall: a wall with omni-directional receiving antennas on the front side (facing the sensors) and longer-range directional antennas on the back side (facing the internet gateway). This wall will receive data from scattered sensors and relay it towards a distant server or internet gateway. It could be mounted on a moving tractor (Fig. 1) facilitating programmable processes that are placed in the signal path between the front and back sides of the wall, including such processes as amplification, data filtering, beam steering and interference avoidance. **For more information please contact: Nouman Ashraf nashraf@tssg.org**

MEET THE RESEARCHER

Name: Dara Leong

Host: Teagasc Moorepark

Education: Received a degree in Microbiology (BSc) from University College Cork in 2012 and completed a PhD in Microbiology in Teagasc Moorepark in association with University College Cork in 2017.



Role in Vistamilk: Dara is a postdoctoral researcher working on Spoke 8. Novel products may offer significant advantages over existing products with respect to their digestibility, bioavailability, reduced allergenicity and beneficial impact on the gut microbiota. Her work focuses on the assessment of novel dairy products or ingredients through the use of fermentation, digestion models and DNA sequencing. In this way, we can examine the effect of a new product/ingredient on gut microbiota and human health.

Contact: Dara.Leong@teagasc.ie

FUNDING OPPORTUNITIES

- [European Green Deal calls](#): €1bn worth of calls to respond to the urgency and ambition of the [European Green Deal](#) objectives, including [Farm-to-Fork](#). Calls to launch in Autumn 2020. Calls draft topics [here](#). Info and brokerage event on October 13th, see [here](#).
- [Marie Curie Individual Fellowships](#): for non-Ireland based researchers to undertake fully-funded postdoctoral fellowships in ROI. Deadline September 9th 2020.
- [OECD Co-operative Research Programme](#) : short-term fellowships in agriculture systems and technologies. Deadline 10th September 2020. Details [here](#).
- [SFI Food Challenge Fund](#): STEM-led solutions to reduce food loss and waste across the food supply chain and development of functional foods. Concept note deadline 25th September 2020.
- [LIFE](#) for nature and biodiversity, climate change mitigation and adaptation projects. Deadline October 6th 2020.
- [SFI Frontiers for the Future](#): “Awards” for innovative, collaborative research with the potential to deliver impact. (€500k-€1M): rolling call. “Projects” for high-risk, high-reward projects (€200-480k): deadline October 8th 2020.

- [IRC New Foundations](#): support for research actions, development of networks and consortia, conference and workshop development, and creative approaches for communication of scientific concepts to a lay audience. Deadline October 20th.
- [IRC Government of Ireland Postgraduate Scholarship Programme](#): for postgraduate research projects in Ireland. deadline October 29th.
- [2nd Career-Fit+ call](#): for Enterprise Ireland Tech Centres and Tech Gateways only. Post-doctoral projects to work with an Irish industry partner. Call opening on September 7th. Deadline December 31st 2020.
- DBEI's [Disruptive Technologies Innovation Fund](#): 3rd call opening in September 2020.
- [Events](#): European Commission's [Expert Workshop on Common European Agricultural Data Space](#): September 8th, register by September 4th. Participants are invited to submit a short position paper, structured along 7 questions identified in a [concept note](#). Questions and position papers will frame the discussions.
- [Digital Dynamism for Adaptive Food Systems](#) from CGIAR Big Data platform. Free and online event from October 19th to 23rd.

NEW STAFF



Left: Elena Hayes, PhD student, Spoke 7

Right: Mohit Taneja, Postdoctoral researcher, Spoke 1

PUBLICATIONS

[The Effect of Compositional Changes Due to Seasonal Variation on Milk Density and the Determination of Season-Based Density Conversion Factors for Use in the Dairy Industry](#)

Puneet Parmar, Nicolas Lopez-Villalobos, John T. Tobin, Eoin Murphy, Arleen McDonagh, Shane V. Crowley, Alan L. Kelly and Laurence Shalloo

[Genetic control of temperament traits across species: association of autism spectrum disorder risk genes with cattle temperament](#)

Roy Costilla, Kathryn E. Kemper, Enda M. Byrne, Laercio R. Porto-Neto, Roberto Carvalho, Deirdre C. Purfield, Jennifer L. Doyle, Donagh P. Berry, Stephen S. Moore, Naomi R. Wray and Ben J. Hayes

[Distributed Denial of Service Cyberbioattack Affecting Bacteria-based Biosensing Systems](#)

Sergio Lopez Bernal, Daniel Perez Martins and Alberto Huertas Celdran

[Identifying artificially drained pasture soils using machine learning and Earth observation imagery](#)

Rob O'Hara, Stuart Green, Tim McCarthy, Conor Cahalane, Owen Fenton, Pat Tuohy

[Delivery of \$\beta\$ -carotene to the *in vitro* intestinal barrier using nanoemulsions with lecithin or sodium caseinate as emulsifiers](#)

Ariadna Gasa-Falcon, Elena Arranz, Isabel Odriozola-Serrano, Olga Martín-Belloso Linda Giblin

[Meta-analysis of cheese microbiomes highlights contributions to multiple aspects of quality](#)

Aaron M. Walsh, Guerrino Macori, Kieran N. Kilcawley & Paul D. Cotter

[KalmanTune: A Kalman Filter Based Tuning Method to Make Boosted Ensembles Robust to Class-Label Noise](#)

Arjun pakrashi and Brian MacNamee

[A Model-Agnostic Approach to Quantifying the Informativeness of Explanation Methods for Time Series Classification](#)

Thu Trang Nguyen, Thach Le Nguyen, and Georgiana Ifrim

EDUCATION AND PUBLIC ENGAGEMENT

Please remember that **ALL VistaMilk staff and students must** complete EPE training in September.

Dates and times;
2nd Sept, 9th Sept, 16th September, 23rd Sept (14:15-15:15) via Zoom.

For more information, please contact Eimear Ferguson directly (eimear.ferguson@teagasc.ie)

