



# VistaMilk

## MAKING AN IMPACT

### COLLABORATIVE ROBOTS DON'T BYTE – BUT ARE THEY “MAN’S BEST FRIEND”?

By Norah O’Shea, John Tobin & Mark Fenelon

In recent times, repetitive lifting and hazardous tasks such as packing / palletising and stock management have been assigned to robots (i.e. pick and place tasks). These robots are large and require a safety cage to protect operators / workers from straying into their defined path of movement during high-speed operations. An alternative to these conventional robots is a collaborative robot (Cobot), where a safety enclosure is not required and the working space is shared between the Cobot and the worker. Benefits of Cobots include automation of repetitive and precision tasks, freeing up staff to solve problems that require good old-fashioned cognitive processing. Integration of vision and optical sensors into Cobots introduces additional detection / quantification capability, and coupled with machine learning, will eventually lead to decision- making Cobots with more advanced applications in the food industry.

Researchers at Moorepark have already demonstrated the application of a Cobot as part of a methodology for determining reconstitution properties of dairy powders. VistaMilk, through the dairy processing spoke will build on this by introducing a new Cobot (Figure 1) and a new program of work evaluating the application of a Cobot and integrated sensors to perform lab-based tasks seamlessly. In addition, these modified Cobots have the ability to determine the impact of physical stresses on organoleptic properties of food, simulating what happens during human interaction.

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Figure 1 Collaborative robot.

## PUBLICATIONS

### Validation of an Automated Body Condition Scoring System Using 3D Imaging

Niall O’ Leary 1, Lorenzo Leso, Frank Buckley, Jonathon Kenneally, Diarmuid McSweeney and Laurence Shalloo

### Large variability in feeding behaviour among crossbred growing cattle

David N. Kelly, Roy. D Sleator, Craig P. Murphy, Stephen B. Conroy, Michelle Judge and Donagh Berry

## MEET THE RESEARCHER

**Name:** Melusine Pigeon

**Host:** Tyndall National Institute

**Education:** Melusine received a degree in electronics engineering (Msc. Eng) from the National School of Civil Aviation (ENAC), Toulouse, France, in 2007 and her Ph.D degree in Microwave, Electromagnetics and Optoelectronics from the Institut National Polytechnique of Toulouse (INPT), France in 2011.



**Role in Vistamilk:** Melusine is a Vistamilk post-doctoral researcher within the sensor research platform. The aim of the project is to design of a battery-less sensing device for animal health. This device integrates a sensor with the ability to monitor biomarkers related to animal health. It wirelessly provides data from the sensor on a periodic basis, enabling an hourly or even daily monitoring of animal health which could prevent the use of systematic preventive antibiotics. This means the animal is only treated when the data from the sensor shows sign of a disease. This improves the health of the animal and in the case of a cow, the quality of her milk. To make this device as less invasive as possible, the choice was made to monitor biomarkers in the tear fluid of the animal’s eye. Consequently, the designed device is integrated into a contact lens which is placed in the animal’s eye. The main challenge in this project will be to miniaturise the sensing device to fit in a contact lens shape without disturbing the animal’s day to day life.

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## 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 13<sup>th</sup>, see [here](#).
- **ERC Advanced Grants:** for established PIs looking for long-term funding to pursue a ground-breaking, high-risk project. [2020 call](#) now open, deadline August 26<sup>th</sup> 2020.
- **AGROBOFOOD:** for consortia of SMEs only. Projects must look at providing robotic technology solutions to agri-food sector problems. Grants of €300-500k per project. Deadline September 1<sup>st</sup> 2020. Call details [here](#).
- **EuroStars-Eureka** for SME international R&D cooperation. Next cut-off date September 3<sup>rd</sup> 2020.
- **Royal Society-SFI University Research Fellowship** for scientists in the early stages of their research career, in all fields of the natural sciences. Deadline 3<sup>rd</sup> September 2020.
- **BioBased Industry Joint Undertaking** for projects on new sustainable value chains, from efficient processing of biomass feedstock supply to bringing bio-based products to the market. [2020 call](#) is open, deadline 3<sup>rd</sup> September 2020.
- **EJP SOIL** : towards climate-smart sustainable management of agricultural soils. Call to open June 30<sup>th</sup> and submission deadline on September 4<sup>th</sup> 2020. Further details [here](#).
- **Marie Curie Individual Fellowships:** for non-Ireland based researchers to undertake fully-funded postdoctoral fellowships in ROI. Deadline September 9<sup>th</sup> 2020.
- **OECD Co-operative Research Programme** : short-term fellowships in agriculture systems and technologies. Deadline 10<sup>th</sup> September 2020. Details [here](#).
- **SFI Food Challenge Fund:** STEM-led solutions to reduce food loss and waste across the food supply chain. Concept note deadline 25<sup>th</sup> September 2020.
- **LIFE** for nature and biodiversity, climate change mitigation and adaptation projects. Deadline October 6<sup>th</sup> 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 8<sup>th</sup> 2020.
- **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 7<sup>th</sup>. Deadline December 31<sup>st</sup> 2020.
- **Event:** [Digital Dynamism for Adaptive Food Systems](#) from CGIAR Big Data platform. Free and online event from October 19<sup>th</sup> to 23<sup>rd</sup>.

## NEW STAFF



**Left:** Duncan Wallace, Postdoctoral researcher, UCD TP7 Dairy Processing [duncan.wallace@ucdconnect.ie](mailto:duncan.wallace@ucdconnect.ie)

**Right:** Jonathon Herron, Postdoctoral researcher, Teagasc Platform 8 Deployment [Jonathon.Herron@teagasc.ie](mailto:Jonathon.Herron@teagasc.ie)

## EDUCATION AND PUBLIC ENGAGEMENT



**Left:** PhD Student at Tyndall, Ehren Dixon, took part in "I'm a scientist stay at home". **Right:** Colleagues collecting images and field data for the grassland image analysis project. Photo credit Deirdre Hennessy @hennessydeirdre (twitter)

## AWARDS AND RECOGNITION

- **TSSG** recently secured a €12M Horizon 2020 project proposal called CITIES2030; the focus of the 48-month project is around empowering cities as agents of food system transformation.
- **Paul Cotter** has been appointed Chief Technical Officer at the recently launched Seqbiome. Read [here](#)



From left: Brad Wrigley, Dr Rich Ferrie, Dr Marcus Claesson, Brendan Curran and Prof Paul Cotter at University College Cork. Image: Science Foundation Ireland