MaynoothWorks
Knowledge Transfer
Enterprise Partnership
Entrepreneurship Innovation

Maynooth University
National University of Ireland Maynooth

Welcome to the first Connect+Innovate of 2023.

We have started the New Year with a major injection of innovation pipeline projects. MaynoothWorks have invested a significant proportion of our license revenues into a programme of high-risk, high-reward research projects within the University, aiming to accelerate applied academic ideas towards impact. If successful, this pilot will become an annual event, helping our early-career researchers generate meaningful results addressing societal challenges. Our researcher focus in this issue is Dr Jeff Crosbie, an awardee of the pilot programme: his unique combination of expertise in clinical diagnostics, X-ray physics, and data analytics makes him the ideal lead of a new programme to improve CT image assessment.

Innovation does not just come from academics, however, and in this issue we celebrate the successes of an entrepreneur amongst our student body. Hardeep Gill, an undergraduate in the School of Physics, has received Enactus and Citi Foundation funding for her idea to broaden inclusion within the University and community, and we look forward to seeing her ideas develop over the next 12 months.

For more information about our services or anything of interest within this newsletter, please contact maynoothworks@mu.ie.

HIGH RISK, HIGH REWARD INVESTMENT DRIVES MAYNOOTH INNOVATION

MaynoothWorks are proud to announce the winners of our first Proof of Concept Fund programme, who will be demonstrating the feasibility of six new technologies targeting unmet needs in society and Irish industry. The programme, funded using license revenues from Maynooth University's IP portfolio, will support researchers from four different schools in the University – from Computer Science to Anthropology.

The programme was designed to provide agile feasibility funding for early-stage technologies, helping researchers pursue the high-risk, high-reward experiments that can conclusively demonstrate the validity of an approach.

Each winning idea builds upon basic research to target a specific and well-documented problem hindering society or industry. Challenges addressed include the recycling of waste plastics in the developing world; code optimisation tools improve the efficiency of data centres; and machine learning-driven assessment of CT scans for cancer screening.

Although the sums provided from the Proof of Concept Fund are relatively modest, the validation the projects will generate will unlock much more substantial research and development funds. Representatives of Enterprise Ireland are tracking the progress of the programme as several projects may be suitable for Commercialisation Fund support; others may be moved immediately towards trial in the community or the clinic. Some will inevitably fail, but this should be seen as a positive: the funding allows our researchers to be creatively brave, proposing ambitious solutions to intractable challenges. The successful pioneers will provide a pipeline of technologies and tools that will become the core of Maynooth University's programme for impact in the future.

The full list of awardees and their proposal titles is below:

Awardee	Project title
Jeff Crosbie	A Machine Learning approach to lung cancer detection from CT datasets
Erivelton Nepomuceno	Greenify your Code!
Indrakshi Dey	A full-duplex low SWaP device for IoT networks
Shane Keaveney	Low cost manufacturing from recycled plastic in the developing world
Pauline Garvey	Providing a social prescribing system for the Irish healthcare sector
Ting Bi	Immersive Multiple Sensorial Media Delivery Network for the Metaverse

RESEARCHER FOCUS: DR JEFF CROSBIE

Dr Jeff Crosbie is a recent arrival at Maynooth University, having joined in October 2022 as a lecturer in the Department of Experimental Physics. His proposal to the MaynoothWorks Proof of Concept Fund scored the highest of all applications, based around the use of Machine Learning algorithms to detect lung cancer from CT data. Jeff is working on this project with two 4th year physics students as well as colleagues from the Hamilton Institute here at Maynooth University.

Before joining Maynooth, Jeff lived and worked in Melbourne, Australia for twenty years. He has had a varied career working in sectors including higher education, biomedical research, clinical services, and the Med-Tech sector. From 2014 to 2020, Jeff was an Associate Professor in Medical Physics at RMIT University in Melbourne, where he was an active teaching and research academic with leadership roles across the School of Science. He's no stranger to start-up: during this period, Jeff co-founded XRV Medical, a med-tech company exploring phase contrast X-ray imaging for applications in radiology. Jeff and his co-founders found a way to radically improve the contrast and quality of diagnostic X-ray images whilst reducing the radiation dose at the same time. He's ideally placed to lead such companies as he brings both technical and clinical expertise: he has worked professionally as a medical physicist at The Alfred Hospital in Melbourne, as well as in hospitals in the UK and Ireland.

Jeff obtained his PhD from Monash University in 2009 for his thesis entitled Synchrotron microbeam radiation therapy. He was awarded an NH&MRC Early Career Research Fellowship at the University of Melbourne from 2010 to 2014, where his research focused on a novel form of radiation therapy for cancer using synchrotron-generated X-rays. In 2012/13 he was a Visiting Scientist at the European Synchrotron Radiation Facility in Grenoble, France.

Away from the laboratory, he is a keen musician: you can find him singing and playing guitar in venues around Dublin.

STUDENT "ENTERPRISE FOR GOOD" SUCCESS

Hardeep Gill, a 2nd-year undergraduate Physics student at Maynooth University, was awarded a seedcorn grant and business mentorship by Citi at the Enactus Pathways to Progress Social Inclusion Entrepreneurship Development Programme 2022/2023. Hardeep's proposal, FoodEase, will develop the range of foods available to students with diets restricted by health, religion, or lifestyle choices.

Maynooth University has some 15,000 students registered, but very limited catering options available on campus – and almost none at all for those following vegan, halal, or kosher diets. Hardeep aims to change that, with a range of hot and healthy street-food snacks catering to all diets, making the campus feel a much more cosmopolitan and welcoming place to those with specialist requirements.

The competition is the result of a partnership between the Citi Foundation and Enactus Ireland, designed to support social enterprises that empower young people from disadvantaged or minority groups. Successful students receive a €1000 grant to help them validate their commercial concepts, accompanied by extensive support from Citi advisors and mentors. FoodEase, developed with MaynoothWorks and Enactus assistance, will be field-tested throughout Spring 2023 towards a major pitch day at Citi HQ in Dublin where she will compete for much more substantial investment funding. The MaynoothWorks team are particularly looking forward to the recipe testing phase…

Citi Foundation