



DATA DRIVEN...

THE OFFICIAL NEWSLETTER OF THE RESEARCH IRELAND CENTRE
FOR RESEARCH TRAINING IN FOUNDATIONS OF DATA SCIENCE

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A MESSAGE FROM THE CRT DIRECTORS

Welcome readers to the latest instalment of our CRT newsletter. As always, it has been a busy time in CRT HQ. PhDs continued to be awarded across the University of Limerick, and Maynooth University with graduations in University College Dublin taking place in December. CRT students also took part in a number of events and workshops including a CPL seminar on showcasing value to industry, and also a session on GIT training delivered by one of our own CRT students Dara MacConville. CRT students also attended conferences and international placements. We even had the excitement of a CRT wedding! Congratulations to Darragh & Leah!

The CRT Executive Management Committee would like to thank all the Enterprise Alliance (EA) employees who ensured our students received top-class placement training experiences and made every effort to integrate the students into their teams. A total of 130+ students have completed training placements with our EA partners since 2019.

From all of us in the CRT, thank you to our Enterprise Alliance partners, our Named Supervisors, our wonderful PhD students, our three HEIs, Technology Ireland ICT Skillnet and Research Ireland for their continued support.





THE SEMESTER EVENTS & NEWS



CPL Seminar: Showcasing Your Value To Industry

The CRT was delighted to host CPL's engaging talk, Showcasing Your Value to Industry, with Graham Burns, CPL Director and Judith Moffett, CPL Business Development Director. The session provided PhD students with practical insights on how to effectively communicate their skills, expertise, and research experience gained throughout their doctoral studies to prospective employers. CPL shared valuable employer perspectives on how PhD experience is viewed within industry, offering practical guidance on navigating the recruitment process, creating a strong and impactful LinkedIn profile, and building the confidence to proactively engage with recruiters. The session equipped students with the knowledge and tools needed to confidently position themselves for success beyond academia. A sincere thank you to CPL for sharing their expertise and helping to empower the next generation of researchers as they explore and pursue diverse career opportunities.

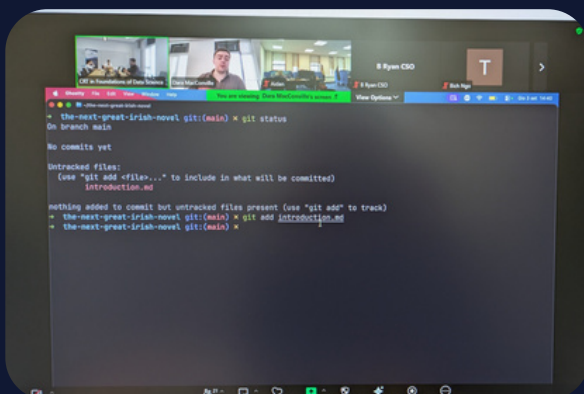


An attendee reported that their key takeaway from the session was "How to prepare yourself and understand industry points of view."

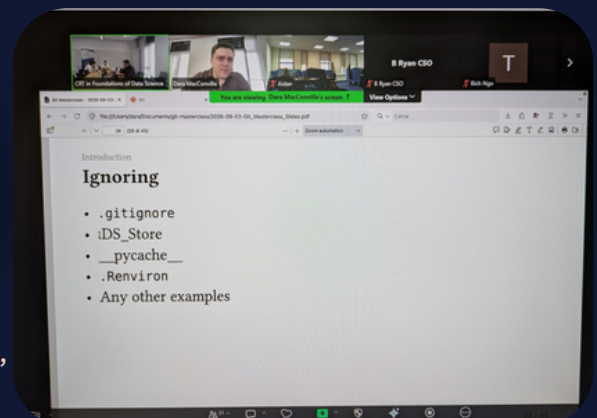
CRT GIT Training



CRT MU student Dara MacConville delivered a practical hands-on training on GIT for our CRT students and enterprise alliance partners. The session introduced students to the fundamentals of GIT, including repository management, branching, merging, and collaborative workflows, helping them to manage their code and research projects more effectively. This was very beneficial to students to ensure that their academic work will be protected and can be recovered in the event of a system disruption and for collaborating in their future careers. Thank you to Dara for delivering this engaging and useful session!



**Trainer Dara MacConville,
CRT Student**





Congratulations to Leah & Darragh on their wedding day!



The CRT is delighted to share the happy news on the recent marriage of our graduates Darragh Glavin (2020 cohort, UL) and Leah Keating (2019 cohort, UL). The wedding took place in Dingle, Co. Kerry in July. Having first met when they began their PhD journey as part of the programme, their friendship grew alongside their academic careers and eventually blossomed into a lifelong partnership.

Throughout their doctoral studies, they supported one another through the challenges and achievements that come with research, building a strong connection both personally and professionally. Their love story is a wonderful reminder that the CRT experience is about more than academic excellence. It is also about the lasting friendships, collaborations, and connections that are formed along the way. One wedding guest (also a CRT graduate) travelled all the way from Brazil for the event!



The Happy Couple!

We were thrilled to celebrate this special milestone with them and wish the wonderful couple every happiness as they begin this new chapter together.



L-R Janet Clifford, former Centre Manager, with CRT UL graduates Dr Aoife Hurley, Dr Edward Gunning, Dr Sarah Murphy, Dr Andrew McInerney, Dr Niall Donlon, David O'Brien, Dr Leah Keating, Dr Darragh Glavin, Dr Eva Ryan, Dr Ellie Fallon, Dr Eoin Walsh, Dr Eduardo Maekawa, Conor Nolan, Director of CRT UL Professor James Gleeson with CRT supervisors Dr David O'Sullivan and Professor Pepijn Van de Ven (Photo credit: Aidan Fitzgerald)

Graduation Time



The CRT proudly celebrated more graduations at the University of Limerick in September:

- **Maniru Ibrahim**, was supervised by **Professor Michael Vynnycky** and **Associate Professor Kevin Moroney**, with their thesis titled “Modelling Drug Release from Degrading and Eroding Polymers.”
- **Mirza Akhi Khatun**, was supervised by **Associate Professor Lubna Luxmi** and **Associate Professor Ciarán Eising**, with their thesis titled “Securing Healthcare IoT with AI.”
- **Stephen Mullins**, was supervised by **Associate Professor Ning Liu**, with their thesis titled “Tiling-based Multislice Algorithm for Transmission Electron Microscopy Image Simulations.”

Congratulations to all our graduates!



L-R Associate Professor Lubna Luxmi Luxmi Dhirani, Dr Mirza Akhi and Professor Ciaran Eising



L-R Associate Professor Kevin Moroney, Dr Maniru Ibrahim and Professor Michael Vynnycky



Our CRT graduates Stephen, Mirza and Maniru



Supervisor Professor Ning Liu with Dr Stephen Mullins

Graduation Time



The CRT proudly celebrated more graduations at the University of Maynooth in September.

- **Gabriel Rodrigues Palma**, was supervised by Professor Rafael A. Moral and Dr Charles Markham, with their thesis titled “Statistical modelling and machine vision applied to automating animal monitoring systems.”
- **Oluwayomi Akinfenwa**, was supervised by **Professor Niamh Cahill** and **Dr Catherine Hurley**, with their thesis titled “Visualisations of Country-Level Panel Data and Hierarchical Models.”
- **Niloufar Poursir Sefidi**, was supervised by **Dr Peter Mooney**, with their thesis titled “Understanding the impact of the COVID-19 pandemic using Bayesian modelling and spatial statistics.”

Congratulations again to our graduates!



L-R Professor David Malone,
CRT MU Director with
graduate Dr Gabriel Rodrigues
Palma

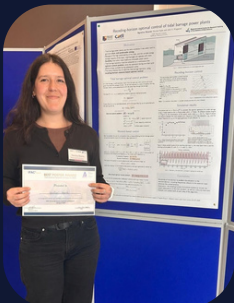


L-R Professor Niamh Cahill, Dr
Oluwayomi Akinfenwa and Dr
Catherine Hurley



L-R Professor David Malone,
CRT MU Director with Dr
Niloufar Poursir Sefidi and her
supervisor Dr Peter Mooney

Awards



Congratulations to CRT MU student Agustina Skierski on winning best poster at the IFACx (Ireland) Control Systems Colloquium. Her poster was titled “Receding-Horizon Optimal Control of Tidal Barrage Power Plants.”

Well done Agustina!



Congratulations to CRT Director (MU), Professor David Malone for winning ‘The Maths Week Ireland 2026’ award for Raising Public Awareness of Mathematics!

Well done David!

CRT in the news

Our Centre Manager Patsy Finn recently gave an interview with Technology Ireland ICT Skillnet, one of the funders supporting the CRT programme.

[Click here to read it.](#)



CRT STUDENT RESEARCH PAPERS

Make a cuppa and check out a CRT student publication



- ECOVIS A Design Study for Visualising Energy Consumption in Green Machine Learning, **Samara Santos (2023 cohort, MU)**, Laís Medeiros, André L. C. Ottoni, Rita Borgo and Erivelton Nepomuceno, Proceedings published by Eurographics - The European Association for Computer Graphics.
- Bridging hydrodynamics and granulation kinetics: An efficient 2D CFD-coupled compartmental PBM approach for fluidised bed granulation, **Zeeshan Ansari (2023 cohort, UL)**, Mainendra Kumar Dewangan, Ashok Das, Stefan Heinrich, Rohit Ramachandran, Mehakpreet Singh, Computer Methods in Applied Mechanics and Engineering, Volume 461, Part A.
- AI feedback enhances community-based content moderation through engagement with counterargument, **Saeedeh Mohammadi (2022 cohort, UCD)**, Taha Yasseri, Computers in Human Behavior Reports, Volume 23, 2026, 101187.
- Receding-horizon optimal control of tidal barrage power plants: Impact of weather dependent tidal variations, **Agustina Skiarski (2023 cohort, MU)**, Nicolas Faedo, John Ringwood, Energy Conversion and Management: X, Volume 31, 2026, 101963, ISSN 2590-1745.
- Measurement stability and differential domain-specific trajectories of the PHQ-9 in late-life depression: Evidence from a collaborative care trial, **Rebecca Ndukwe (2023 cohort, UL)**, Marcia Scazufca, Pepijn Van de Ven, Journal of Affective Disorders, Volume 413, 2026, 122171, ISSN 0165-0327.
- Singularity of the axisymmetric stagnation-point-like solution within a cylinder of the 3D Euler incompressible fluid equations, **Yinshen Xu (2022 cohort, UCD)**, Miguel D. Bustamante, Journal of Fluid Mechanics. 2026;1040:A5. doi:10.1017/jfm.2026.11847.

Book & Podcast Recommendations of the Month



Recommended by Brendan Lowry, CRT UL student:



The Numberphile Podcast.
Interviews with people who love numbers and mathematics.
Hosted by Brady Haran.

Recommended by Ben McKeon, CRT UL student:



Coders: Who they are, what they think and how they are changing the world.
Author: Clive Thompson

Cool Stars Conference, Tokyo Japan by CRT MU Student Seán Mills

In June, I attended the 23rd edition of the Cool Stars conference, hosted in Tokyo, Japan. This conference gathered researchers across the Astrophysics discipline – from low mass stars, solar physics, exoplanets and more! I presented my recent work as a poster titled “Accretion-Ejection Connection in DQ Tau”, where I looked into the connection on how mass is transferred onto and ejected away from DQ Tau, which is a pair of orbiting stars. Understanding this transfer of mass may help us understand how these stars formed and how they have evolved over time. During the conference, I got to network with many researchers as well as some collaborators on my project, which helped progress my current research.

During my free time, I also got to do some sightseeing around Japan. I explored the city of Tokyo, visiting the Imperial Palace in Tokyo and various Shinto shrines around the city. I also visited the traditional villages surrounding Mount Fuji and the island of Enoshima in Fujisawa. It was an incredible learning experience for my PhD and an amazing country to visit.



**CRT student Seán Mills
during his trip to Japan**



Cyberus Spring School, Lorient, France

by CRT graduate, Dr. Mirza Akhi



In April 2026, I had the opportunity to travel to Lorient, France, as an invited speaker at the CYBERUS Spring School Programme 2026, hosted by the University of South Brittany (Université Bretagne Sud). At the Spring School, I presented my PhD research on "IoT Log Analysis: From Simulation to DDoS Attack Analysis".

During the presentation, I walked through how to simulate Distributed Denial-of-Service (DDoS) attacks in Healthcare Internet of Things (H-IoT) environments using the Cooja simulator. I then moved from simulation to practical IoT log analysis, showing how suspicious activity can be identified from raw logs. This included log parsing and the analysis of network behaviour to recognise patterns associated with DDoS attacks. I also explained how researchers can collect and store simulated cyberattack data to generate synthetic datasets for cybersecurity research, including preprocessing and feature extraction. In this context, I highlighted my published paper, "TCN-Based DDoS Detection and Mitigation in 5G Healthcare-IoT: A Frequency Monitoring and Dynamic Threshold Approach", as an example of how deep learning models can be trained using synthetic datasets to detect cyberattacks.

Beyond the technical aspects of my session, one moment stands out in particular. Before my presentation started, the organiser, Prof. Guy Gogniat, introduced me to the audience and mentioned that I had just completed my PhD. The audience responded with a warm round of applause, so standing on the stage at that moment was deeply rewarding. The CYBERUS Spring School was also special for another reason: my PhD supervisor, Dr Lubna Luxmi Dhirani, joined the programme as a guest lecturer. She delivered a lecture on "The Truth is in the Logs: From Attack Simulation to NIS2-D Compliance". This added another dimension to the event, and she represented the University of Limerick (UL) on an international platform.

The timing of this invitation marked an important point in my academic journey, as I defended my PhD thesis at UL earlier that month and, shortly afterwards, travelled to France for this event. This allowed me to share the knowledge and expertise developed throughout my doctoral research with an international audience. I am grateful to the CYBERUS Spring School organisers for the invitation and for supporting my accommodation in France, and to the Research Ireland Centre for Research Training in Foundations of Data Science for funding my participation and the research behind this session.



Dr Mirza Akhi delivering her invited session, IoT Log Analysis: From Simulation to DDoS Attack Analysis



Associate Professor Lubna Luxmi Dhirani delivering her guest lecture, The Truth is in the Logs: From Attack Simulation to NIS2-D Compliance

My International Placement, by Keru Wang, UCD



From October 2025 to April 2026, I spent six months at Tsinghua University in Beijing for my international research placement, where I joined the Intelligent Driving Laboratory (iDLab) and worked on reinforcement learning for embodied intelligence and robotic control.

My PhD research focuses on reinforcement learning and distributional approaches to decision-making. The placement gave me an opportunity to explore how these ideas connect with embodied intelligence, where learning algorithms interact with complex physical systems. At Tsinghua, I worked primarily on simulation-based reinforcement learning for robotic control and discussed related topics such as model-based reinforcement learning and world models with researchers in the group.

One of the most valuable aspects of the placement was experiencing a research environment that brings together machine learning, control, autonomous systems, and robotics. Research meetings and discussions provided useful perspectives on my work and encouraged me to think more broadly about policy learning, planning, world models, and robotic decision-making.

Being based at Tsinghua for several months allowed me to become part of the everyday research community rather than simply visiting for a short collaboration. I enjoyed working with researchers from different backgrounds and seeing how another research group approaches research and collaboration. Living in Beijing was also an important part of the experience. Spending several months away from Dublin gave me a different perspective on both research and daily life.

Overall, my time at Tsinghua University was a valuable part of my PhD. It helped me develop new research connections, broaden the scope of my work towards embodied intelligence and robotic control, and experience a different academic environment. I would encourage other CRT students to take advantage of the opportunity to undertake an international placement.



Keru's Tsinghua University student ID during the international placement.



Tsinghua University-DiDi signing ceremony for university industry collaboration.



Lee Shau Kee Science and Technology Building, home to the School of Vehicle and Mobility at Tsinghua University.

My International Placement, by Laura Craig, UCD

For the month of April 2026, I had the privilege of undertaking a research placement at Southern Methodist University (SMU) in Dallas, Texas, under the supervision of our collaborator, Dr. Raanju Sundararajan. This visit allowed us to work directly on a project that will form a key component of my doctoral thesis.



My research focuses on nonparametric statistics. Specifically, this project aims to bring the flexibility of nonparametrics, drawing inspiration from both generalized linear models (GLMs) and kernel density estimation, into regression analysis for beta and negative binomial distributed data.

While the academic work was central, the trip was also a personal milestone: it was my first time spending an entire month living abroad on my own. As a dual Irish-American citizen, it was a fantastic opportunity to immerse myself in the US research environment and get a genuine feel for what living there might be like long-term.

Outside the lab, I made the most of my weekends exploring Dallas. As an avid fan of independent bookstores and cafes, I quickly scouted out the local scene, becoming a regular at a stunning coffee shop housed inside a converted church, and spending cozy afternoons reading near campus. The SMU campus itself felt straight out of a movie with its classic redbrick architecture and lush greenery, perfect for regular tourist walks.

My host supervisor was incredibly welcoming, even inviting me out to dinner with his family, which made the experience feel all the more homely. Overall, it was an invaluable trip both personally and academically. I am deeply grateful for the opportunity to undertake an international placement, and I strongly encourage any fellow researchers to pursue one if given the chance.



CRT Student Laura's trip to Dallas, Texas



CRT Alumni Spotlight: Dr Kaavya Rekanar, Postdoctoral Researcher in Cybersecurity at University of Limerick

There is one moment from my PhD that I don't think I'll ever forget.
"Congratulations, Dr Kaavya."

Those words from my viva panel gave me literal goosebumps. I walked out of the room with the biggest smile on my face, and I don't think anyone could wipe it off. In that moment, years of organised chaos suddenly felt worthwhile: late nights, experiments that refused to cooperate, paper deadlines, and wonderfully terrible ideas that somehow kept growing into entire research projects.



I had done it! For years, your entire life revolves around finishing your PhD. Every decision somehow points towards that one goal. Then, almost overnight, the question changes from "When are you submitting?" to "So... what's next?" Researchers are funny that way. We barely finish climbing one mountain before we start scanning the horizon for the next one. In hindsight, I probably lasted about five minutes before I started looking for the next research problem.

After my PhD, I joined the University of Limerick as a postdoctoral researcher, where my work shifted towards AI and cybersecurity. Walking into a room where everyone knew more than me didn't feel intimidating. It felt exciting. My first thought was usually, "Brilliant... I have so much to learn." Looking back, I realised the biggest thing my PhD gave me wasn't expertise. It was the confidence to become a beginner again.

Since graduating, I've had the opportunity to build new collaborations, spend time as a visiting researcher at University College London, and work with people whose expertise is completely different from my own. Each of those experiences taught me something new, and every one began with a conversation.

I don't think my family is surprised anymore when a perfectly ordinary conversation somehow ends with me saying, "Wait... I think there's a paper in this." They've accepted that almost anything can become a research idea if you leave me alone with it for a few minutes. I still haven't decided whether that's a good thing or an occupational hazard. Looking back, the opportunities that have shaped my career all began in surprisingly similar ways. Conversations led to collaborations, a research visit, and research questions I hadn't even considered before. Most of the opportunities I've valued started with someone asking a question or me deciding to ask one myself.

If I could offer one piece of advice to current CRT students, it would be this: don't be afraid to start the conversation. Send the email. Ask the question. Apply for the opportunity that feels just outside your comfort zone. You don't need to have everything figured out before you begin. More often than not, the opportunities worth taking start with a simple conversation. Looking back, I thought my viva was the finish line. It wasn't. It was simply the moment I realised that finishing a PhD doesn't change who you are overnight. It quietly changes how you look at the world.



CRT Alumni Spotlight: Dr James Hannon, Data Scientist at Lexis Nexis Risk Solutions

I submitted my PhD thesis in January 2026 and successfully defended it the following month. With the PhD complete, my focus shifted to finding my first role after academia. One thing I would say to current students is to prepare for what is a very competitive job market. As a PhD graduate, you're often applying for roles that sit above graduate-entry level, but at the same time, you may be competing against candidates with several years of industry experience. As a result, rejection is a normal part of the process, so don't be discouraged when you receive more rejection emails than interview invitations.



The best advice I can offer is to be prepared when an opportunity does come along. Spend time working through coding challenges, practicing technical and behavioural interview questions, refreshing the fundamentals in your field, and be ready to explain your research clearly to a non-academic audience. The encouraging part is you only need one opportunity to go your way. In June, I joined LexisNexis Risk Solutions as a Data Scientist. LexisNexis is a global data and analytics company that provides products and services across a range of industries, including insurance, healthcare, legal, and government. I work within the insurance division, which has made for a natural transition given the focus of my PhD thesis, "Statistical Models for Improved Insurance Pricing and Risk Assessment Using Telematics and Wearables Data".

Moving from academia to industry has required very few adjustments. There are similarities, but also plenty of differences. The working hours are flexible, with the option to start the day between 8 and 10 a.m., although perhaps not quite to the extent that academia allows. The work is more collaborative. There are many more meetings in your calendar each week. I also discovered an abundance of business jargon and acronyms that can be dizzying. While I still use the statistical knowledge developed over my years in education, I spend more time writing and maintaining production code, analysing data, and exploring opportunities that could lead to new products, new business, or insights that add value for customers.

While I hope to spend more time developing predictive models in the future, academia remains the environment where you'll typically find the greatest emphasis on research and development.

Overall, I have enjoyed the transition to industry. I think data science offers an excellent balance of intellectually stimulating work, continuous learning, collaborative problem-solving, and a healthy work-life balance, alongside competitive salaries and benefits. If you're considering careers beyond academia, I would certainly encourage you to explore it—provided AI hasn't automated us all out of a job by the time you graduate!

dunnhumby

CRT Alumni Spotlight: Dr Nathan McJames, Applied Data Scientist at Dunnhumby

“Would you do it again if you could go back in time?”. That’s a question I was asked a lot after finishing my PhD. It’s a difficult question to answer in just a few words, because a PhD is a long journey with plenty of ups and downs. But looking back, there is a lot that I am grateful for. What I enjoyed most about the PhD experience was the complete freedom to work on the problems and research questions I found most interesting. This gave me the unique opportunity to bring together my interests in statistics, data science, education, and education data.



Research aside, I also have great memories of the many trips away to conferences, training courses, and other events throughout the four years. Being able to share the PhD experience with friends that I’m still in touch with today made it all the better. I was also incredibly lucky to have two fantastic supervisors, whose support and guidance made a huge difference.

After submitting my thesis in September 2024, I joined Dunnhumby as an Applied Data Scientist, where I have been working ever since, helping a leading retailer better understand and serve their customers. One of my favourite things about my current role is that I regularly get to present directly to senior stakeholders and decision-makers, and I can have a real impact on decisions that affect anything from the products to the promotions I see during my weekly shop! I also get to apply the expertise I developed during my PhD to help solve complex business problems using causal methods that I worked with during my PhD.

The experience of tutoring, lecturing, presenting at conferences, and distilling complex results into actionable insights are all skills from the PhD that have helped me significantly in adapting to this new role. But working in industry still required a shift in focus and mindset. While the skills I developed during my PhD have been invaluable, I have also had to learn to think more about the practical application of analysis, the needs of different stakeholders, and ultimately how the work I do can help inform business decisions.

It sounds obvious, but if I had to give one piece of advice to anyone thinking of doing a PhD, or in the early stages of one, it would be to pick a topic that you know you’re truly passionate about and interested in. I think this is something people can underestimate when choosing topics, as it can be easy to get carried away with choosing a recent and trendy research area instead.

Ultimately, I think the value of a PhD goes beyond the thesis itself. For me, it was four years of pursuing something I was genuinely curious about, learning to navigate uncertainty, and figuring things out when there wasn’t an obvious answer. Those are experiences I still draw on today, and wouldn’t want to have missed. So, would I do it again if I could go back in time? Absolutely.