EPIC CDT

Annual Report 2025

EPSRC Centre for Enhancing Human Interactions and Collaborations with Data and Intelligence Driven Systems (EPIC)

> We see people as a source of wonder that can be exposed, expressed and celebrated through their use of interactive data and intelligence-driven systems that prioritise freedom, control and creativity.

Introduction

This year marks both a celebration and a turning point for the EPIC Centre of Doctoral Training. With our fifth EPSRC-funded cohort now in full stride and our many more of our earliest graduates forging exciting new paths in academia, industry, and public service, we find ourselves reflecting on how far we've come — and how much more there is to do.

When we began, our vision was simple yet ambitious: to nurture people-first researchers who could design and interrogate intelligent systems that amplify human potential rather than replace it. Today, that vision continues to grow and diversify. Our students and supervisors are working with partners across health, education, industry, and culture. Across all these projects, one principle holds firm: the belief that the future of data and intelligence is, above all else, human.

In 2025, our Centre has matured into an internationally recognised hub for responsible and creative AI research. We have built partnerships that span sectors and continents — from the Emergency Medical Retrieval and Transfer Service in Wales to the Honda Research Institute in Tokyo — and each collaboration deepens our understanding of what it means to design with and for people.

In an unsettling world, we continue to be proud that our commitment to equality, diversity, and inclusion has strengthened each year. The diverse experiences and perspectives within our community continue to shape the questions we ask and the systems we build. This diversity is not incidental; it's fundamental to what makes EPIC thrive.

As we move forward, the EPIC Centre remains a living experiment in collaboration — a space where design, data, ethics, and imagination come together. Whether you're reading this as a partner, a student, or a curious onlooker, I hope this report gives you a glimpse into what we believe: that the real promise of the amazing technologies we are witnessing will be achieved through a purposeful enabling of creativity, connection, and care. And this is what the Centre is all about!

Matt Jones
Director

[1] https://e-v-e.ai/
[2] https://rai.ac.uk/

The Centre's Home

The EPIC Centre continues to be housed in the Computational Foundry at Swansea University's Bay Campus, with the Cohorts having unlimited access to bespoke laboratories for each specialism of computational research (maker lab, theory lab, security lab, user experience lab, biometrics and vision lab, visualisation lab, IoT lab), and quality teaching, training and formal meeting spaces.

The EPIC Centre has a dedicated 271m² of space including collaboration and interaction spaces, as well as an allocated desk and storage space for each member of the Cohort. The EPIC Centre also has its own dedicated social breakout space.

Our Leadership Team

There have been no major changes to the management and leadership of our Centre.

Matt Jones (PI) continues to be the EPIC Centre Director and Co-I Markus Roggenbach (Deputy Director) continues to lead the theoretical computer science elements of the Centre and deputises for the Director as needed.

All Co-Is have dedicated time allocated to the EPIC Centre, and have provided their experience to support its delivery. Since the inception of the EPIC Centre, the Co-Is have provided the following: ensured that key scientific agendas emerging in their respective fields are reflected in the Centre; assisted the Director in leading the Sandpits; assisted in the recruitment of Cohorts 1–5; and been active advocates for the Centre and liaison points of contact for relevant stakeholders and partners.

Dr Jennifer Pearson
Co-Director of the MSc first year programme

Professor Markus Roggenbach
Centre Deputy Director

Professor Matt Jones
Centre Director

Dr Matt Roach
Strategic Stakeholder Lead

Dr Sherryl Bellfield
Centre Manager

Dr Simon Robinson
Co-Director of the MSc first year programme

Tashi Gyaltsen
Senior Business Engagement Officer

Oliver Williams
CDT Project Officer

International Advisory Board

Our members

To ensure our Centre is inspiring, successful, challenged and of international relevance, we have set up an Advisory Board with academic members who are experienced in innovative training and who are setting the global computational science agendas.

Vicki Hanson

Vicki Hanson FACM FRSE FBCS, is an American computer scientist noted for her research on human-computer interaction and accessibility and for her leadership in broadening participation in computing. She was named the Chief Executive Officer of the Association for Computing Machinery (ACM) in 2018 having served as its President from 2016 to 2018. Dr Hanson was a Distinguished Professor at the Rochester Institute of Technology within the HCI and Accessibility research groups. She was also Professor and Chair of Inclusive Technologies at the University of Dundee where she led multiple efforts related to inclusion of older adults and individuals with disabilities

Ben Shneiderman

Ben Shneiderman is an American computer scientist, a Distinguished University Professor in the University of Maryland Department of Computer Science, which is part of the University of Maryland College of Computer, Mathematical, and Natural Sciences at the University of Maryland, College Park, and the founding director (1983-2000) of the University of Maryland Human-Computer Interaction Lab. He conducted fundamental research in the field of human-computer interaction, developing new ideas, methods, and tools such as the direct manipulation interface, and his eight rules of design.

Vint Cerf

At Google, Vint Cerf contributes to global policy development and continued spread of the Internet. Widely known as one of the "Fathers of the Internet," Cerf is the co-designer of the TCP/IP protocols and the architecture of the Internet. He has served in executive positions at the Internet Society, the Internet Corporation for Assigned Names and Numbers, the American Registry for Internet Numbers, MCI, the Corporation for National Research Initiatives and the Defence Advanced Research Projects Agency and on the faculty of Stanford University. Vint Cerf sits on US National Science Board and is a Visiting Scientist at the Jet Propulsion Laboratory.

Moshe Vardi

Moshe Vardi is an Israeli mathematician and computer scientist. He is a Professor of Computer Science at Rice University, United States. He is an expert in model checking, constraint satisfaction and database theory, common knowledge (logic), and theoretical computer science. He is the author of over 600 technical papers as well as the editor of several collections.

Elisabeth André

Elisabeth André is a full professor of Computer Science and Founding Chair of Human-Centered Multimedia at Augsburg University in Germany. She has a long track record in multimodal human-machine interaction, embodied conversational agents, social robotics, affective computing, and social signal processing. Drawing on the concept of computer-based role play with virtual characters, she has promoted a novel form of experience-based learning, for example, to help children and young people cope with bullying at school, develop intercultural sensitivity or master socially challenging situations, such as job interviews.

Anirudha Joshi

Anirudha Joshi is professor in the interaction design stream in the IDC School of Design, IIT Bombay, India. Anirudha is involved in designing interactive products for emergent users in developing economies. He has worked in diverse domains including healthcare, literacy, Indian language text input, banking, education, and industrial equipment. He received the IFIP Outstanding Service award in 2015 and the IFIP TC13 Pioneer Award in 2019. He is currently the VP Finance on the ACM SIGCHI Executive Committee, a member of the India HCI Steering Committee, and the chair of the INTERACT Steering Committee.

Charles (Chuck) Hansen

Charles (Chuck) Hansen is an IEEE Fellow and a Distinguished Professor of Computing in the School of Computing and a founding member of the Scientific Computing and Imaging Institute at the University of Utah. Chuck Hansen has published over 170 peer reviewed journal and conference papers and has been a co-author on three papers recognised with “Best Paper Awards” at the IEEE Visualisation Conference (1998, 2001, 2002). He was twice an Associate Editor in Chief (AEIC) of IEEE Transactions on Visualisation and Computer Graphics. His research has made contributions to the fields of scientific visualisation, computer graphics, parallel computation and computer vision.

Jinwoo Kim

Jinwoo Kim received his BS degree in computer science and statistics from Seoul National University in Seoul, South Korea. After receiving his master’s degree from Courant Institute of Mathematical Sciences (New York University), he continued his study in the PhD program at the Real Time Compilation and Instruction Level Parallel Processing Lab of NYU as a research scientist. He subsequently became involved with the Center for Research in Embedded Systems and Technology (CREST) at the Georgia Institute of Technology in Atlanta, Georgia where he spent another two and half years conducting research funded by the Department of Defense, Hewlett-Packard and the State of Georgia.

Stakeholder Strategic Advisory Board

The purpose of our Stakeholder Strategic Advisory Board is to extend the pathways for cohort engagement during and after graduation; and provide horizon scanning input in terms of regional, economic and societal changes and how the Centre might respond to these.

Our Members

In 2024/25, the following people were members of our Strategic Stakeholder Advisory Board.

Elin Rhys

Elin Rhys grew up in Solva, Caernarfon and Llanelli. A graduate in Biochemistry from the then University of Wales Swansea in 1978, she worked as a scientist with the Welsh Water Authority before embarking on a career as a television presenter with HTV and S4C in 1984. In 1993, she founded her own television company with the aim of popularising science in the media, and to do so mainly through the medium of Welsh. Today, Telesgop is a multi-media company and has its headquarters in the city of Swansea. Telesgop productions – whether for television, radio or the Internet, in English and Welsh – are held in high esteem across the world. Fact-based programmes such as the Welsh-language farming and countryside magazine series, Ffermio, regularly attract the highest numbers of S4C’s audience. The series Dibendraw, which highlights leading scientists of the past and present has provided a platform for some of Swansea University’s science research stars to communicate their findings to the general public. Alongside science, Elin Rhys has produced documentaries that explore some of the foremost figures of Wales and the world. Among these are programmes such as Edward VIII’s Murderous Mistress (Channel 4); The Davies Sisters: Bringing Art to Wales (BBC Wales); Heath v Wilson: the Ten Year Duel (BBC Four); Wallis Simpson: The Secret Letters (Channel 4); Darwin, Y Cymro a’r Cynllwyn (S4C); Syr Rhys ap Thomas – Cymro a laddodd Richard III (S4C); Gwirionedd y Galon: Dr John Davies (S4C) and documentaries on the musicians John Denver and Meat Loaf (BBC Four).

Rory Clark

Rory Clark is a member of Cohort 2 of our Centre. Rory’s PhD centres around ethnographic study to ensure that, not only are current radiologists and radiographers comfortable and confident with the Machine Learning tools that they use, but are able to identify, critique and evaluate potential new machine learning systems that they may wish to implement in the future. Rory’s external stakeholder partner is the National Imaging Academy of Wales.

Dr Jonathan Burnes

Joining from Swansea University, Dr Jonathan Burnes is tasked with overseeing delivery of the £1.3 billion investment portfolio throughout South West Wales. Dr Burnes has held a number of senior positions at the university in the last 12 years. These include Director of Information, Services and Systems; Digital Strategy Development Manager; and Associate Director of Planning and Strategic Projects. As the City Deal's Programme Director, Dr Burnes will establish and lead a new City Deal Programme Management Office that will coordinate a portfolio of major projects across the Swansea Bay City Region, which is made up of Carmarthenshire, Neath Port Talbot, Pembrokeshire and Swansea. The City Deal programme is aimed at creating conditions that attract business and simulate economic growth for the City Region, making it an even more attractive place to live, work, do business and invest.

Laura Clark

Laura Clark is the UKI NHS Value & Partnership Manager at Amicus therapeutics. As NHS Value & Partnership Manager Laura is responsible for leading strategic collaborations across the NHS, life science industry and academia. Laura began her career at Pfizer Pharmaceuticals and has over 15 years' experience of working within the pharmaceutical industry in a number of senior commercial and operational roles, developing and delivering strategic programs across the UK to support life science collaborations with health systems to improve health and well-being and achieve outcomes that matter to patients. Laura is currently leading the Amicus collaboration with Swansea University, focusing on improving patient outcomes in the area of rare disease.

Prof Helen Griffiths

Professor Helen Griffiths was appointed Pro-Vice-Chancellor with responsibility for Research & Innovation at Swansea University in August 2020. Prior to this, she was Executive Dean of the Faculty of Health and Medical Sciences at the University of Surrey. Previously, Helen was Pro Vice-Chancellor International following from five years as Executive Dean of Life & Health Sciences at Aston University. Helen has been a member of the respective University Executive Boards and Councils since 2009. Helen is responsible for leading the development, implementation and continuous improvement of Swansea University's Research & Innovation Strategy.

Mark Casey

Mark Casey heads up the UK Hydrographic Office's Research and Innovation function. Mark has 30 years' experience of utilising geospatial data to produce navigation products and services in both the Air and Maritime domains. Initially 22 years spent in the Royal Air Force making aeronautical maps, charts and publications for the RAF and wider joint forces and has spent the last 8 years at the UK Hydrographic Office leading the Research and Innovation team in exploring new technologies and tools to create new marine data and navigation Proof of Concepts for UK Defence and the commercial maritime markets.

Dr Peter Waggett

Dr Peter Waggett has had an extensive research and development career. He started work as a Senior Research Scientist at the Marconi Research Centre and is now IBM's Director of Emerging Technology. He has advised a number of public and private sector clients on how to harness innovative and disruptive technologies and acted as a subject matter expert on a number of major projects. He now leads teams of specialists who are charged with developing first of a kind and prototype systems using research and development assets for IBM's clients and partners.

The team is based at IBM's Hursley laboratory near Winchester and at the Hartree Centre near Daresbury. The teams include developers of IBM's Watson cognitive computing offerings and 'big data' analytic solutions.

Lizzie Hims

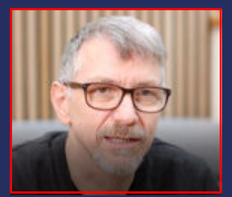
Lizzie Hims is the Human Computer Interaction (HCI) Portfolio Manager at EPSRC. They represent the ICT Theme on behalf of UKRI.

CDT Alumni

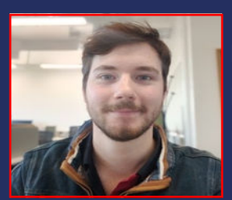
Dr Anna Carter
Research Fellow
Northumbria University

Emily Nielsen
Senior Research Associate
Bristol University

Connor Rees
Research Associate
The University of Manchester



Ben Wilson
Research Associate
Swansea University



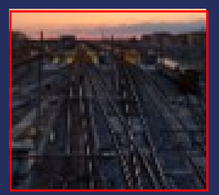
Rory Clark
Research Associate
University of Bristol

Lyds Channon
Founder and Director
Channon Risk Intelligence (CRI)

Suraj Ramchand
Post-Doctoral Researcher
Exeter University

Luke Thomas
Research Engineer
UK Marine AI Ltd.

Connor Clarkson
Tutor - Computer Science
Swansea University



Ben Lloyd-Roberts
Technocamps
Swansea University

Jakub Vincalek
Principal Data Analyst
HSBC

Tunde Olatunji
UKRI Policy Intern Fellow
Swansea University

Alumni Testimonial

I'm currently working as a principal data analyst at HSBC UK. My day-to-day work involves helping all areas of the bank gain insights about our customers so that we can provide the best possible service. I have a chance to use skills I gained during my time at the CDT everyday such as deploying machine learning algorithms, complex problem-solving, and most importantly,storytelling.

➢ *Jakub Vincalek*

I joined the CDT in 2019 as part of the first cohort of PhD candidates. Being part of the centre gave each of us access to other PhD students, to academic and support staff at the Computational Foundry as well as to the technical and material resources of the Computer Science Department. Incredibly, the four years of the programme (1 MSc year + 3 PhD years) flew by at what feels like an unnatural speed. I think this is because of how intensively populated it was with events and opportunities to engage with work both directly and indirectly connected with my own research. We were able to both attend and deliver talks on the progress of our different research areas. But we were also privileged to receive a series of visiting researchers at our Research Crucible alongside multiple chances to travel to national and international conferences to provoke discussion and debate and allow networking.

My current post as a Research Officer at Swansea is allowing me to develop work related to my PhD. I am lucky to have been able to secure a post that allows both continuity and extension of my earlier research. I'm part of a European consortium of research and technical institutions in the EU-funded Tango project on human-machine synergy. I'm able to have regular discourse with other researchers internationally who are working on advanced intelligent systems. My role is in investigating the ways in which these might approach effective combination with humans so as to leverage the complementary strengths of each. I am involved in practical, experimental work with researchers, clinicians and developers and also get to engage in deep conversations with established authors. So it's a really positive experience all round. The route to this research post through the Epic CDT has been really beneficial and fulfilling.

➢ *Ben Wilson*

Centre Publications

At the time of writing this report, all members of Cohort 1 have now submitted their thesis. Cohort 2 are in the process of completing their PhD and all are forecast to submit within their allocated candidature period. Cohorts 3, 4 and 5 are progressing well with their PhD research.

Publications by PhD researchers are listed below, with the researcher's name in bold.

Alan Dix, **Anna. R. L. Carter** and Miriam Sturdee. 2021. Where, Who, Why? Tools to Encourage Design In Context. In EduCHI 2021 Workshop, part of CHI 2021; May 15, 2021, Yokohama, Japan. https://educhi2021.hcilivingcurriculum.org/wp-content/uploads/2021/04/educhi2021-final90.pdf

Jakub Vincalek. It's the journey not the destination: building genetic algorithms practitioners can trust. In Proceedings of the Genetic and Evolutionary Computation Conference Companion (GECCO '21). Association for Computing Machinery, New York, NY, USA, 231–232. July 10-14, 2021

Connor Rees. AVERT (Addressing Violent Extremism and Radicalisation to Terrorism) International Research Symposium – Violent Extremism at the Crossroads: Persistence, Change and Dynamism 20 years after 9/11. Islamic State's Exploitation of File-Sharing Sites: Which Platforms and Why? 2021, November 3–5. Symposium, Melbourne, Australia — Conference Presentation

Stuart Macdonald, **Connor Rees**, & Joost S. Remove, Impede, Disrupt, Redirect: Understanding & Combating Pro-Islamic State Use of File-Sharing Platforms. April 2022. https://www.resolvenet.org/research/remove-impede-disrupt-redirect-understanding-combating-pro-islamic-state-use-file-sharing

Pranjal Jain, Alex Jordan Blandin, Jacki O'Neill, Mark Perry, Samia Ibtasam, Paul G. Allen, Suleman Shahid, Beni Chugh, David Sullivan, Heloisa Candello, James Pomeroy, Rajat Jain, Robert Dowd, Matt Roach, Matt Jones. Platformisation of Digital Financial Services (DFS): The Journey of DFS in the Global North and Global South. CHI '22 Extended Abstracts: CHI Conference on Human Factors in Computing Systems Extended Abstracts, New Orleans, LA, USA, April 2022

Yashi Jain, **Pranjal Jain**. Donut Plugin: A Circular Design Tool to Implement Circular Economy. InCHI '22: ACM CHI Conference on Human Factors in Computing Systems, April 30 – May 06 2022, New Orleans USA.ACM, New York, NY, USA

Pranjal Jain, Anirudh Nagraj, Kartik Joshi, Taru Jain, Dilrukshi Gamage, Sayan Sarcar, Nova Ahmed. HCI Knowledge Dissemination in South Asia through both Coursework and Community Engagement. EduCHI'22, April 30-May 1 2022, New Orleans, LA, USA

Jennifer Pearson, Gavin Bailey, Simon Robinson, Tom Owen, Chi Zhang, Thomas Reitmaier, Cameron Steer, **Anna. R. L. Carter**, Matt Jones, Deepak Ranjan Sahoo, Dani Kalarikalayil Raju.l 2022. Can't Touch This: Rethinking Public Technology in a COVID-19 Era. InCHI '22: ACM CHI Conference on Human Factors in Computing Systems, April 30 – May 06 2022, New Orleans USA.ACM, New York, NY, USA. https://doi.org/http://dx.doi.org/10.1145/3491102.3501980

Alex Blandin, Matt J Roach, Matt Jones, Jen Pearson, Daniele Doneddu, David Sullivant. Co-Designing Explainable AI for a Mobile Banking App. InCHI '22: ACM CHI Conference on Human Factors in Computing Systems, April 30 – May 06 2022, New Orleans USA.ACM, New York, NY, USA. https://www.dropbox.com/s/etrs1qwio0avzh9/HCXAI2022_paper_23.pdf?dl=0

Craig MacDonald, Olivier St-Cyr, Colin. M. Gray, Leigh Ellen Potter, Carine Lallemand, Anna Vasilchenko, Jaisie Sin, **Anna. R. L. Carter**, Caroline Pitt, Eunice Sari, Deepak Ranjan Padhi, Ajit. G. Pillai. 2022. EduCHI 2022: 4thAnnual Symposium on HCI Education. InCHI '22: ACM CHI Conference on Human Factors in Computing Systems Workshops and Symposia,April 30 – May 06 2022, New Orleans USA.ACM, New York, NY, USA. https://doi.org/10.1145/3491101.3503703

Anna. R. L. Carter, Gavin Bailey, Jennifer Pearson, Matt Jones, Simon Robinson, Dani Kalarikalayil Raju, Jonathan Hicks, Spencer Winter. 2022. Designing and Embedding a Tangible Public Interface in the Covid Era. InCHI '22: ACM CHI Conference on Human Factors in Computing Systems Extended Abstracts,April 30 – May 06 2022, New Orleans USA.ACM, New York, NY, USA. https://doi.org/10.1145/3491101.3503556

Anna. R. L. Carter, Miriam Sturdee, Alan Dix, Dani Kalarikalayil Raju, Martha Aldridge, Eunice Sari, Wendy Mackay, Elizabeth Churchill. 2022. InContext: Futuring User-Experience Design Tools. InCHI '22: ACM CHI Conference on Human Factors in Computing Systems Workshops and Symposia,April 30 – May 06 2022, New Orleans USA.ACM, New York, NY, USA. https://doi.org/10.1145/3491101.3503739

Suraj Ramchand. Rare Clinical Event Modelling and Prediction for Covid Patients. Wales Data Nation Accelerator Event. 26th May 2022. Cardiff University Emily Nielsen, Think Zebra: 3 Minute Talk Finalist, June 2022. https://dl.acm.org/doi/10.1145/3531073.3531175

Anna R. L. Carter, Miriam Sturdee, Alan Dix. Prototyping InContext: Exploring New Paradigms in User Experience tools. AVI 2022: Proceedings of the 2022 International Conference on Advanced Visual Interfaces June 2022. https://dl.acm.org/doi/10.1145/3531073.3531175

Andy Gray, Alma A. A. Rahat, Tom Crick, Stephen Lindsay, Darren Wallace. Using Elo Rating as a Metric for Comparative Judgement in Educational Assessment. 2022 6th International Conference on Education and Multimedia Technology. July 13-15 2022. Guangzhou, ChinaUsing Elo Rating as a Metric for Comparative Judgement in Educational Assessment (researchgate.net)

R. S. Clark, M. Porcheron, M. Jones, P. Wardle, V. E. Whitchurch Perspectives On Machine Learning and Artificial Intelligence from Trainee Radiologists, Scientific Exhibit, July 13-17, 2022. https://dx.doi.org/10.26044/ecr2022/C-21806

Suraj Ramchand; Gavin Tsang; Duncan Cole; Xianghua Xie. RetainEXT: Enhancing Rare Event Detection and Improving Interpretability of Health Records using Temporal Neural Networks 27-30 September 2022 RetainEXT: Enhancing Rare Event Detection and Improving Interpretability of Health Records using Temporal Neural Networks | IEEE Conference Publication | IEEE Xplore

Macdonald, Stuart., **Rees, Connor**., and Joost S. Remove, Impede, Disrupt, Redirect: Understanding & Combating Pro-Islamic State Use of File-Sharing Platforms. Washington, D.C.: RESOLVE Network 2022. https://doi.org/10.37805/ogrr2022.1

Rees, C., Müller, B. All that glitters is not gold: trustworthy and ethical AI principles. AI Ethics (2022). https://doi.org/10.1007/s43681-022-00232-x

Ben Lloyd-Roberts, Phillip James and Michael Edwards. Mining Invariants from State Space Observations. https://nwpt.w.uib.no/files/2022/11/NWPT22_paper_3339.pdf

Luke Thomas, Michael Edwards, Austin Capsey, Alma Rahat, Matt Roach. Deep Visual Place Recognition for Waterborne Domains. The 29th IEEE International Conference on Image Processing (IEEE ICIP), Bordeaux, France in the period October 16-19, 2022

Matt Hall. Exploring Clinicians' Use and Perceptions of Patient-Reported Outcome Measures at a Tertiary Cancer Centre in Wales. ISOQOL 29th Annual Conference. 19-22 October 2022. Prague, Czech Republic

Jakub Vincalek, Sean Walton and Ben Evans. Evaluating the Effect of a Ducted Winglet on the Induced Drag of Wind Turbine Blade using CFD and Trefftz Plane Analysis. 19 April 2023. Engineering with Computers. Evaluating the effect of a ducted winglet on the induced drag of wind turbine blade using CFD and Trefftz plane analysis | SpringerLink

Colin. M. Gray, Craig. M. MacDonald, Carine Lallemand, Alannah Oleson, **Anna. R. L. Carter**, Olivier St-Cyr, Caroline Pitt. 2023. EduCHI 2023: 5th Annual Symposium on HCI Education. InCHI '23: ACM CHI

Ben Lloyd-Roberts, Phillip James, Michael Edwards, Simon Robinson, and Thomas Werner. 2023. Improving Railway Safety: Human-in-the-loop Invariant Finding. In Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems (CHI EA '23). Association for Computing Machinery, New York, NY, USA, Article 389, 1–8. https://doi.org/10.1145/3544549.3573853

Emily Neilsen. CHI'23: A Patient Centered Approach to Rare Disease Technology; EICS23: Simulating the Rare Disease Diagnostic Journey; IDDHI'23: Motivations of Technology Use in Undiagnosed Rare Disease Patients (workshop)

Alex Blandin, Matt Roach, Daniele Doneddu, Jen Pearson, Matt Jones, David Sullivan. A position on establishing effective explanations from human-centred counterfactuals for automated financial decisions. 13/14 April 2023. AISB Convention 2023. Swansea University. aisb2023.pdf

L. Channon, M. Roach, L. Nouri Department and A. Rahat. The Use of Out-linking by the Far-Right. BISA 2023 Conference, 21-23 June 2023, Glasgow, Scotland

Anna R. L. Carter. Making Sense of Outdoor Public Places: Exploring the Role of Multisensory Interactions. 23rd June 2023. Northumbria University

Anna R. L. Carter, Marianna Obrist, Christopher Dawes, Alan Dix, Jennifer Pearson, Matt Jones, Dimitrios Zampelis and Ceylan Besevli. 2023. Scent InContext: Design and Development around Smell in Public and Private Spaces. In Designing Interactive Systems Conference (DIS Comapnion '23), July 10-14 2023, Pittsburgh, PA, USA. ACM, New York, NY, USA, 4 pages. https://doi.org/10.1145/3563703.3591455

Alex Blandin. Human-centred design study on establishing effective explanations based on counterfactuals for automated financial decisions. 23-28 July 2023. 25TH International Conference on Human-Computer Interaction. Copenhagan, Denmark

Jacub Vincalek - Analysing Extreme Right Visual Propaganda: Developing a Framework'. 20 Jul — 21 Jul, 2023. Terrorism Research in a Polarized World. 15th Annual International Conference.

Andy Gray, Alma Rahat, Tom Crick, Stephen Lindsay. A Bayesian active learning approach to comparative judgement within education assessment. Computers and Education; Artificial Intelligence Volume 6, June 2024 100245

Megan Morgan, Jiaxiang Zhang, Alma Rahat,Gareth Jenkins. 'Explainable Machine Learning: Predicting Clinical Outcomes in Welsh Emergency Departments.' Lecture notes in Computer Science 2024 Volume 14976, Pages 290 - 301

Rory Clark - It Works Better When I do That: Interaction and Communication in Radiology Departments: 41st ACM conference on Design Of Communication (SIGDOC '23) https://dl.acm.org/doi/pdf/10.1145/3615335.3623011

Saskia Davies - "VR and Sensors in Alleviating Loneliness," 2023 11th International Conference on Affective Computing and Intelligent Interaction Workshops and Demos (ACIIW), Cambridge,MA, USA, 2023, pp. 1-5, doi:10.1109/ACIIW59127.2023.10388117.

Saskia Davies - S. Davies, T. Owen, S. Walton. Immersive and User-Adaptive Gamification in Cognitive Behavioural Therapy for Hypervigilance. TechRxiv. February 20, 2024. DOI:10.36227/techrxiv.170846665.52932492/v1.

Connor Atkins: Multi-scale WSI Analysis: A Cascade Framework for Efficient Breast Cancer Metastasis Detection. https://link.springer.com/chapter/10.1007/978-3-031-98691-8_7

Daisy Welham:"Multi-Objective Reinforcement Learning for the Control of Storm-Water Systems Under Distributional Shift"-:in the IEEE symposium on Computational Intelligence for Energy, Transport and Environmental Sustainability.

Pranjal Jain: Understanding the Role of Supportive Tools in Repair: Exploring Repair as an Embodied Practice https://dl.eusset.eu/items/5ed0a8ff-ff46-4b17-aa9f-5f04c9e68102

Pranjal Jain: Democratising Repair Expertise: Designing Socio-Technical Systems to Capture Tacit Knowledge and Support Sustainable Repair Practices https://dl.eusset.eu/items/bc9fee28-21bb-4dfc-bccd-a543155181b2

K. W. Tesema, L. Hill, M. W. Jones, M. I. Ahmad and G. K. L. Tam, "Point Cloud Completion: A Survey," in IEEE Transactions on Visualization and Computer Graphics, doi: 10.1109/TVCG.2023.3344935

K. W. Tesema, L. Hill, M. W. Jones, G. K. L. Tam, Denoising-While-Completing Network (DWCNet): Robust Point Cloud Completion against Corruptions. https://cronfa.swan.ac.uk/Record/cronfa69951

Lyds Channon: Automated Detection of Transphobic Content on YouTube (In Press, Bulletin of Applied Transgen der Studies) addresses explainable classification of hateful narratives.

Lyds Channon: Beyond Videos: Unearthing Transphobic Communities on YouTube (Presented at TASM 2024) explores user-AI interactions in content moderation systems.

Lyds Channon: Automating Analytics and Monitoring Out-Linking Activity of the Far-Right (Presented at BISA 2023)– demonstrates tools supporting collaborative decision-making in hostile environments.

Lyds Channon: Automated Detection of Mainstreamed Transphobic Content on YouTube (to be presented at UKAIRS 2025) explores user-AI interactions in content moderation systems. https://livrepository.liverpool.ac.uk/3189045/

Lyds Channon: Fictional Frames, Real Harm: The Use of Film and Gaming Tropes to Aestheticise Hate in YouTube Commentaries (presented at Popular Culture and Political Violence Symposium 2025) explores how far-right narratives are disguised and legitimised through entertainment-based discourse in comment sections.

Jade Logan: Behind Customer Satisfaction Metrics: Exploring User Perceptions of Net Promoter Score (NPS) as a Measure of Satisfaction. https://cronfa.swan.ac.uk/Record/cronfa69924

Ibùkún Olátúnjí. Why try to build try to build a co-creative poetry system that makes people feel that they have 'creative superpowers'? Joint Proceedings of the IUI 2023 Workshops: HAI-GEN, ITAH, MILC, SHAI, SketchRec, SOCIALIZE co-located with the ACM International Conference on Intelligent User Interfaces (IUI 2023) Sydney, Australia, March 27-31, 2023. pp. 67–80. https://hai-gen.github.io/2023/papers/1594-paper-HAIGEN-OlantunjiTunde.pdf

Ibùkún Olátúnjí. Interactive writing systems and why small(er) could be more beautiful. The Second Workshop on Intelligent and Interactive Writing Assistants, co-located with The ACM CHI Conference on Human Factors in Computing Systems (CHI 2023), Hamburg, 2023. https://cdn.glitch.global/d058c114-3406-43be-8a3c-d3afff35eda2/paper8_2023.pdf

Ibùkún Olátúnjí. Humans feeling creative and the dangers of large language models. GenAICHI2023 at CHI (Non-archival workshop paper. Accepted for inclusion GenAICHI 2023: Generative AI and HCI at CHI 2023.)

I. Olátúnjí, M. Sheppard, A. Rahat, M. Jones, and A. Rogers. Battle Rap as a Framework for Human-Machine Co-Creation. In Proceedings of the 16th International Conference on Computational Creativity (ICCC '25), 2025, to appear. https://www.researchgate.net/publication/395001797_Battle_Rap_as_a_Framework_for_Human-Machine_Co-Creativity

I. Olátúnjí and M. Sheppard. Measuring Creativity in Co-Writing with AI: Rhyme Dens-ity and the Limits of Computational Proxies. In Proceedings of the 16th International Conference on Computational Creativity (ICCC '25 https://www.researchgate.net/publication/395001235_Measuring_Creativity_in_Co-Writing_with_AI_Rhyme_Density_and_the_Limits_of_Computational_Proxies

Olatunji, Ibukun, and Mark Sheppard. Next Token Prediction Is a Dead End for Creativity: Why It's Impossible to Lose Yourself in the Moment. arXiv preprint. 2025. https://www.arxiv.org/pdf/2505.19277

Olátúnjí, Ibùkún. Arts ARKADE: Digital Placemaking, Urban Arts, and the Future of Public Space. Accepted for presentation at the RGS-IBG Annual International Conference, Birmingham, UK, 2025, to appear.

Olátúnjí, Ibùkún: Why try to build try to build a co-creative poetry system that makes people feel that they have "creative superpowers"? https://ceur-ws.org/Vol-3359/paper8.pdf

S. Davies, T. Owen, and S. P. Walton, 'Exploring Human Behaviours of Stress through Virtual Reality Interactions using Accessible, Embedded Sensors and User-Personalised Machine Learning', Proceedings of the Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (CHI EA '25). ACM, pp. 1–7, Apr. 25, 2025. doi: 10.1145/3706599.3719732.

Christodoulides A, Tam GK, Clarke J, Smith R, Horgan J, Micallef N, Morley J, Villamizar N, Walton S. Survey on 3D Reconstruction Techniques: Large-Scale Urban City Reconstruction and Requirements. IEEE Transactions on Visualization and Computer Graphics. 2025 Feb 19. doi: https://doi.org/10.1109/TVCG.2025.3540669

International Seminar Series and Masterclasses

We are proud of the calibre of people who have participated in our International Seminar Series and Masterclasses. These people and associated titles of their talks include:

Jonathan Lazar - A born-accessible model (BAM) of software and digital content development

Anirudha Joshi – Design for Unmet Needs

Madeline Balaam - Intimate Touch: Designing for Where Technology Meets the Body

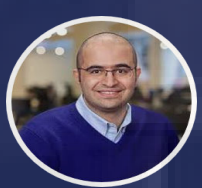
Awais Rashid - Understanding Privacy Requirements of Marginalised and Vulnerable Populations

Duncan Brumby - Redefining Digital Engagement: Notifications and Productivity

Joel Fischer – Exploring the Capabilities and Potential of ChatGPT: A Deep Dive into Large Language Models and Interaction

Harold Thimbleby - Quack IT and How to Fix IT

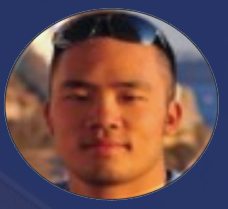
Robert Bismuth - Fermat, Swansea University Alumni



Pejman Mirza-Babaei – Developing New Evaluation Methodologies, Tools and Data Visualisations for Games UX Evaluation

Richard Harper - Lancaster University - The Abstraction between User and LLMs: a discussion of the fundamental problem in interaction with State of the Art AI

Deborah Olukun - The Limits of Detail: Heterogeneity and Parameter Identification in Agent-Based Models



Hantao Liu - Saliency-Driven Approaches for Visual Quality Assessment

Paul Rosin - Analysing Scrolls (and Films)

Katta Spiel - marginalised perspectives on embodied computing through a lens of Critical Access

Yvonne Rogers Is Human centred AI Being Overtaken by AI-enabled HCI**?**Rogers -

Simone Stumpf - A Career Pathway in Academia

Cosmin Munteanu - GenAI,VR, and the Digital Marginalization of Older Adults - Can we Escape the Cult of Techno-Solutionism?

All-Hands Research Retreat — Gregynog Hall

This year we took all PhD cohorts on a research retreat to Gregynog Hall.
The programme was packed with a range of thought-provoking talks and activities including:

- An audience with Nicholas Micallef
- An audience with Dr Pete Arnold
- My Research: Why it Matters with Rouba Iskandar from Grenoble University
- An audience with Tashi Gyaltsen
- An insightful tour of Gregynog Hall, taking the cohorts back in time
- My Research: Why it Matters with Prof Matt Jones, Prof Jen Pearson, Prof Jiaxiang Zhang, Dr Sean Walton and Simeng Qui
- Positivity and Cohort Building with Sam Carrington
- An EPIC Centre quiz night hosted by Tashi Gyaltsen

One of the highlights of the retreat was a comedy show hosted by Sam Carrington and featuring students and staff from the EPIC CDT. The comedy show was a unique and enjoyable way to help our cohort members improve their confidence and resilience, as well as homing in on several skills such as quick thinking, public speaking, storytelling, being body language aware and networking.
An enormous amount of fun and laughter was had by all!

As part of the Research Retreat, we also ran the student-led Festival of Ideas. The students wanted to share ideas, learn and network so decided that the best way to do this was for each student to provide a 3-minute Why My Research Matters talk, followed by a Q&A session. The audience then provided feedback to the speaker in the form of one thing that was positive, one thing to consider and one question they still have. Feedback showed that the session proved useful for the presenter and the audience.

smirk experience

harnessing the power of comedy

Launchpad Crucible

Between the 5th March and 7th March 2025, the Centre organised its second 'Launchpad Crucible - Making Strong First Steps in Your Career' for Cohort 3.

Based on student feedback from the previous Launchpad Crucible's, it was again facilitated by Sam Carrington - Founder of the Smirk Experience, and held off site in a venue in Llandeilo.

In 2012 Sam tried stand-up comedy and loved it. In the proceeding five years he's played close to 1,000 gigs, including a dozen or so festivals around the country and three full runs at the Edinburgh fringe festival.

He now promotes and mcs Smirk Experience nights for the public and corporations as well as participating in festivals and gigs as an independent comic. While combining his role at ITV and learning the ropes of stand-up comedy, Sam began observing the links between the corporate world and live performance, identifying areas such as public speaking, personal branding and creativity as possessing the most obvious crossover.

The Programme

The programme was designed to prepare the soon to-be PhD graduate to make strong first steps in their career outside of the Centre.

Basic Communications (*Sam Carrington*)
Ever wondered how stand-up comics remember a set, deal with nerves, bond with strangers (plus a million other things) and how you can use the same techniques in job interviews and presentations?

Personal Branding (*Sam Carrington*)
Branding is all around us. Jeff Bezos described it as 'what people say about you when you're not in the room' and if you aren't thinking about your personal brand then you should be.

How to Network (*Sam Carrington*)
People think this is a skill you either have or you don't, but they're wrong. Like anything, networking can be learnt and developed— you'll know how after this.

Creativity (*Sam Carrington*)
Children are some of the most creative people around, but adults can lose this skill easily unless checked. This module will show you how to have an endless stream of ideas for work, play or anything else.

An Introduction to Project and Time Management
(*Dr Steven Bidder, Planning and Strategic Projects Unit, Swansea University*)
Understand the basics of project and time management and why it is so important in any career you pursue.

Job Searching and Salary Negotiation
(*Sam Carrington*)
Learn how to job search properly and effectively and then practices, techniques and mindsets that will change how you approach negotiations about salary.

Team Working (*Sam Carrington*)
Individual achievements are dwarfed by what collaborations can do. Discover mindsets and techniques that will help you work with others to not only hit by surpass goals.

Resilience (*Sam Carrington*)
Contrary to common belief, everyone has to overcome obstacles. Successful people do it, unsuccessful people don't. Once you understand about how your primal brain can hold you back you won't hear from it again.

Positivity (*Sam Carrington*)
Henry Ford once observed 'if you think you can or can't do something you're probably right'. You'll learn how to foster and maintain a positive attitude for whatever life throws at you.

Advanced Communications (*Sam Carrington*)
For those who wish to, this is your chance to put what we learnt in the Basic Communication section into practice in a very safe, supportive environment.

Launchpad Feedback

'A first class, superbly executed and informative event'.

'The Launchpad Crucible has definitely boosted my confidence for moving into the next stage of my career'.

'Definitely an event not to be missed!'

Cohort Perspectives

Cohort 3 — Saskia Davies

This past year has been relatively quiet in the CDT, with Cohort 1 having completed their PhDs and moved on, and many members of Cohort 2 winding down as well. Despite these reduced numbers, the year has still been a successful one, with a number of students submitting work to top-tier conferences and travelling internationally to present their research.

A particular highlight for me was attending CHI 2025 in Japan – the leading conference in Human-Computer Interaction. Attending CHI alongside otherstudents and staff from Swansea University was a valuable and fun experience, as it gave me the opportunity to engage with cutting-edge research and build meaningful connections with researchers from around the world. Here I also presented my newest research findings at a full-day poster session, fostering one-to-one discussions that not only deepened my understanding of the field but also sparked new ideas for future collaboration and innovation.

Academic events throughout the department promote similar experiences and learning opportunities. Theannual research retreat at Gregynog Hall wasalso a success, hosting valuable workshops with a sense of camaraderie and community.

With Cohort 3 coming to the end of our final funded year, several of us unfortunately lost our stakeholder partners as their companies have gone out ofbusiness. While this presents some challenges, the CDT has continued to offer their best support and guidance as we work towards completing our PhDs - both Academic and Admin staff have done all they can to ensure our progress is not adversely impacted. Thank you for everything!

Cohort 4 — Matt Plozajski

I have nearly finished the third year of the course (second year of the PhD). The main change since last year has been an increased pressure to deliver tangible results on my projects. While this has led to this year feeling markedly more stressful than the previous, I definitely feel like I can see the knowledge that I have developed over the course of this programme manifest in practice. Additionally, I feel that I have a much clearer picture of the objectives of my project and what I need to do in order to complete my PhD, which has helped to motivate me.

The cohort as a whole feels quite fragmented. I think with the routine of PhD life settling in, many of us have chosen to work from home and focus on our own projects, rather than attend events in CoFo. This has led to me losing touch with most of the other students, which I think is a shame. Despite this, I have been active in networking within and without the university through attendance at a summer school, the CDT retreat and numerous conferences that has allowed me to feel well embedded in the research community in general.

In summary, while this last year has been more stressful than the first, it has provided me with a much clearer picture of how the skills I have been learning are applied in practice and set me up with a clear path for how to complete the PhD in a year's time.

Cohort 5 - Lewis Hall - Rudford

When joining the CDT, the first thing you notice is how welcoming and supportive the community is, both the staff and other cohorts. For Cohort 5, our journey began with an induction retreat, where we had the chance to socialise with fellow cohort members, students from other years, and the CDT staff. This experience quickly eased any initial anxieties and helped us feel integrated into the community right from the start. Following on from the induction, we were quickly made welcome in the office space and from there we were ready to go. Throughout the year, Cohort 5 has had the opportunity to develop invaluable skills through a diverse range of modules covering various disciplines. These modules have not only broadened our perspectives and equipped us with the tools necessary for conducting research, but also given us a chance to develop and mature together as a cohort.

Stakeholder Landscape 2025 – 2026

This year marks a significant milestone, as all five EPSRC EPIC cohorts have now begun their industry-funded research. The Centre remains committed to co-creating AI technologies with partners across industry, healthcare, and the public sector.

Through the University PGR service last year, we secured co-funding for three new PhDs with support from All Wales Medical Genomics Service, the Paediatric Unit at Cardiff and Vale University Health Board, and No More Marking. Based within the EPIC CDT, these projects focus on paediatric health, genomics counselling, and comparative judgement in schools, advancing our mission to apply human-centred AI to practical challenges.

We also held discussions with Beam Connectivity, Pearson, National Highways, Tata Steel, GSK, UKAEA, Cwm Taf Morgannwg University Health Board, and HSBC. However, these potential collaborations did not materialise due to the suspension of the co-funding programme caused by wider financial pressures across UK universities. In response, we have broadened our strategic focus to pursue new opportunities.

With funding from the Welsh Government and EPSRC IAA, we ran workshops with Malta Life Sciences and the Malta Ministry of Health, focusing on how AI and data science can be applied to public health trends and potential commercial opportunities. In parallel, we are in discussions with the Bank of Valletta on a fully funded PhD exploring human–AI approaches to digital customer retention.

International collaboration is now a key priority. Funded by the Welsh Government and aligned with the Year of Wales-Japan Collaboration, we are building partnerships with organisations including Honda Research Institute, Yokohama Rubber, Panasonic, and the Centre for Human Augmentation at Japan's Ministry of Economy, Trade and Industry. A workshop in Tokyo is scheduled for October, with Japanese partners due to visit Swansea University to advance joint work in robotics, manufacturing simulation, and warehouse management. These initiatives are expected to generate new research prototypes and form the basis for bigger grant applications. We are also preparing to extend our reach into the Middle East (scheduled for late November) by developing links with universities and research institutions in the region.

Social Impact Projects

The Citizens Advice Swansea, Neath and Port Talbot; Developing self-help tools
Team: Jade Logan, Lewis Hull-Radford and Mathew Humphreys

The project aims to relieve pressure on overstretched staff by developing self-help tools that clients can access online. With demand for advice outpacing capacity, the initiative will create digital resources in English and Welsh to help people prepare for sessions in advance, such as completing budgeting exercises for debt advice. By integrating these tools into the organisation's website and improving the currently unused 'Local Advice' section, the project will make support more accessible to clients, including older people with lower digital literacy, while ensuring staff can focus on the most complex cases. The outcome will be practical resources that empower clients to take initial steps independently, improve preparedness for advice sessions, and expand the reach of Citizens Advice services across Swansea, Neath and Port Talbot.

The Computing at School and Technocamps
Team: Manjiri Joshi, Meg Morgan, Rachel Hill, Boyd Migisha, Jumaira Miller

Many schools lack teachers with computing expertise, limiting pupils' opportunities to develop skills in coding, web design, and algorithms. This project aims to address that gap by creating teaching resources that strengthen specialist knowledge. The team will survey teachers to identify weaknesses in the curriculum, design interactive lesson plans and activities, and test adaptive digital tools that respond to learners' needs. Resources will be refined through stakeholder input and feedback, resulting in a comprehensive package of classroom and self-paced materials. The project aims to improve pupils' digital literacy, provide practical support for teachers, and increase engagement with computing education through community events and outreach.

The Red Team Swansea
Team: Tom Wood, Margarita Deli-Slavova, Rewash Ale and Reza Foratikashani

The project aims to give Cyber Crime and Terrorism students hands-on experience with penetration testing tools and real-world cybersecurity practices. Working closely with course lecturers, the team is preparing educational materials, delivering a guest lecture, and planning follow-up workshops open to wider student groups. Activities include demonstrations of tools such as the USB Rubber Ducky, WiFi Pineapple and Deauther Watch, alongside developing a tool library system and organising a mock physical security audit to strengthen students' CVs. The project will provide practical training opportunities, expand participation across disciplines, and enhance the employability of students by equipping them with tangible skill

The Swansea's Musical Heritage
Team: Matt Ploszajski, Dylan Parry and Manal Ghanem

Swansea's rich musical history is at risk of being scattered and underrepresented. This project will enhance a web tool developed last year to preserve and share the city's distinctive musical culture. In collaboration with the Music Hub and the Digital Humanities Department, the team will refine the display of icons and information boxes, introduce an intuitive upload function for new content, and build a developer space to manage archived material. Feedback from partners will guide improvements to ensure the tool is both user-friendly and sustainable. The project will also explore linking physical heritage sites with QR codes. The result will be an accessible, engaging resource that archives Swansea's musical heritage and opens it up to the public, strengthening community connection to the city's cultural history.

Stakeholder Perspectives

Cardiff and Vale University Health Board

Our collaboration with the Centre originated through Swansea University's outreach to our department, which created an opportunity to bring together expertise in AI, computer science and genomics. The partnership has been highly constructive, characterised by strong engagement, open dialogue and a clear shared purpose. Together we are developing a generative AI chatbot training tool, drawing on transcripts and recordings from patient appointments to enhance the training of genetic counsellors and clinicians in medical genetics. By focusing on real-world clinical interactions, the project ensures the tool is grounded in practical use and directly relevant to the needs of healthcare professionals. This initiative is significant as it delivers a practical resource for education and training, while also fostering a culture of innovation, encouraging new approaches to service delivery and strengthening understanding of generative AI across the Welsh Genomics Service.

- Dr Ian Tully, Consultant Geneticist, Adult Genetic Lead for SWAN Clinic.

Cardiff and Vale University Health Board

We are delighted to collaborate with the EPIC Centre to explore how AI can be applied to address critical challenges in paediatric healthcare. The collaboration has been highly productive, with strong engagement, open dialogue and a shared commitment to advancing research with practical impact. The work focuses on digitising unstructured medical records and applying AI, including natural language processing, machine learning and human-in-the-loop approaches, to develop tools that support predictive insights and personalised treatment pathways for neonatal and oncology care. By integrating clinical expertise throughout, the project ensures outputs are directly relevant and usable for healthcare professionals. We are excited to see how the project will evolve and the valuable insights it will deliver, both in improving care for children and in shaping the future of AI-driven paediatric healthcare research.

- Rhian Thomas-Turner, R&D Lead NACHfW/ Operational Lead CYARU, Cardiff and Vale University Health Board

No More Marking Ltd

It has been highly productive collaborating with Swansea University. We are delighted that the No More Marking PhD student is thriving as part of the EPIC CDT cohort. We are excited about our project that scales Bayesian active learning Comparative Judgment to handle thousands of submissions across schools and assignments, introduces dynamic item-ranking and delivers insights of learner progress over time. We look forward to gaining valuable insights that will advance our mission to make assessment fair, reliable and efficient through Comparative Judgment.

- Dr Chris Wheadon, Founder & CEO of No More Marking Ltd

ITSUS Consulting

This project applies a human-centred approach and machine learning techniques to automate and visualise anomaly and vulnerability detection in critical communication systems. Progress has been very strong, with real momentum as we move into the next phase. The work is centred on developing an emulator that enables wireless networks to be visualised, edited and adapted with greater ease, supporting testing, development and planning in a way that is both interactive and accessible for ITSUS Consulting customers. Interest has already been shown by organisations such as DSTL and the MoD, who recognise the potential of the tools being created. The project is also enhancing our expertise, equipping us with new skills in applying AI and ML to real-world challenges. Looking ahead, we are keen to model more complex, real-world scenarios in real time and to explore innovative methods of visualising this data, with plans to present the outcomes more widely to share knowledge and extend impact beyond the immediate team."

- Jonathan Jones, Senior Consultant, ITSUS Consulting

National Imaging Academy Wales

Our work with Rory's project has played a key role in embedding a research-driven approach within the NIAW culture. It developed a co-designed socio-technical framework to evaluate and introduce AI-based diagnostic imaging tools in NHS Wales, ensuring alignment with clinicians' needs, fostering trust and usability, and supporting improved health outcomes and service efficiency. The 3-year research has influenced our service design while supporting regulatory compliance and quality improvements. Strategically, the project has offered new insights that have changed how we approach challenges, questioned existing assumptions, and highlighted opportunities for improvement. From a partnership perspective, the collaboration has established strong links with the Swansea University and other research partners, extending our presence and influence within wider innovation networks.

- Tracy Norris (Academy Manager), National Imaging Academy Wales

Emergency Medical Retrieval and Transfer Service (EMRTS) Cymru

The partnership with the Centre on the project Participatory Design Approach to Developing a Fair Human-in-the-Loop Decision Support System in the Emergency Control Room of the EMRTS has provided valuable insights that have helped us rethink priorities and explore new opportunities in the adoption of AI and ML. The research has shown that human–computer interaction, rather than the technology itself, is central to successful implementation and will remain a key focus for ongoing work. The collaboration has strengthened our skills and capacity, enhancing our ability to engage effectively with academic and research partners and delivering significant value relative to the investment involved. It has also expanded our connections within Swansea University and beyond, diversifying our research portfolio and creating opportunities for future projects, funding, and wider collaborative engagement across the UK. This work continues to inform our approach and generate insights for the longer term.

- Dr David Rawlinson, Clinical Informatics & Research Manager, Emergency Medical Retrieval and Transfer Service (EMRTS) Cymru.

Welsh Water

Our research collaboration is on exploring how reinforcement learning and human-in-the-loop design can be applied to decision support through an explainable AI approach. The focus is on simulating a wastewater pumping station and optimising pump operation to reduce spills, pollution and energy costs. Progress has been encouraging, with a generic pumping station successfully modelled using a limited amount of real-world data, enabling the reinforcement learning algorithm to manage tank levels and pump control while minimising environmental and energy impacts. Although delays in accessing operational data initially slowed development, the work has already provided valuable insight into the requirements for applying AI-driven optimisation in this setting. The next phase will see the model adapted to a specific pumping station and tested against the PLC controllers currently in use, creating the opportunity for direct performance comparison. We are excited that the collaboration will generate practical efficiencies while also advancing understanding of how explainable AI can support critical infrastructure.

- Liam Butler, Data and Analytics Manager, Welsh Water

TATA Steel

Connor Clarkson's PhD research has had a significant impact across multiple areas at Tata Steel. Practically, the tools and techniques developed have improved internal processes and supported regulatory and quality assurance activities. They enable inspection experts to better understand how computer vision identifies defects,particularly where human inspectors perceive issues that the system may not flag. Clustering techniques provide a way to evaluate defect library groupings and ensure classification is as reliable as possible, while large-scale evaluations of defect libraries, previously impossible manually, are now feasible. The human-centred approach ensures inspectors remain integral to the process, building confidence and engagement rather than fear of replacement, while providing practical training and improved understanding of AI systems. This focus also reduces the downside of knowledge erosion when incorporated into a system by keeping the knowledge experts involved actively in directing the system, rather than becoming dependent on it and losing the very skills and knowledge the system is built on. Retaining and enhancing this knowledge is vital to ensure any system continues to be scrutinised and enhanced rather than simply believed correct.

Strategically, the project has offered fresh insights into defect library consistency and labelling practices,challenging assumptions and identifying opportunities to enhance performance and training. It has strengthened our engagement with the CDT Centre and wider research networks, enabling knowledge exchange, participation in panels and events, and connections with experts across computer science, engineering, and business. Offline tools have also supported staff development, allowing experimentation and validation without impacting live production systems. Representation on the Engineering Council has enabled contributions to discussions on responsible AI in STEM. Overall, the human-centred approach ensures tools are reliable, understandable, and aligned with our departmental.

- Dr Simon G Lewis CEng CMgr MCMI FIMMM, Supply Chain Data Science Lead, Tata Steel UK

The Director's End Note - Into the 6th Year

As we close this year's report, I'm struck by how vividly the EPIC story reflects the wider moment we find ourselves in. Around the world, societies are grappling with the power and perils of artificial intelligence — and yet, here in Swansea, I see daily examples of how thoughtful, people-centred innovation can make things better, fairer, and more imaginative.

Our students and staff are redefining what "AI research" means. They are designing systems that listen, adapt, and learn from the people they serve. They are building tools that help doctors, teachers, and communities, not just algorithms that optimise. And they are asking questions — ethical, creative, deeply human questions — that no machine could ask for us.

The EPSRC's foundational support has enabled us to grow a generation of researchers who will carry the EPIC ethos far beyond Swansea — into new labs, industries, and global collaborations. And now, with new partnerships forming across Europe, Japan, and beyond,the seeds of the next phase are already beginning to bear good fruit.

So, as we step into this new phase, my message is straightforward; the one the Centre has articulated from the beginning: let's keep people at the heart of it all, driving innovation through human values, aspirations and wonderful abilities. The technology will change, as it always does.

But if we stay curious, open, and human, the best — as ever — is yet to come.

Matt Jones

Matt Jones
Director
October 2025

UKRI Engineering and Physical Sciences Research Council

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