

# COLLABORATING WITH BUSINESS

by academics in Arts, Humanities and Social Sciences

## The Cardiff University researcher flying the flag for human-focused cybersecurity at Airbus

*Dr Phil Morgan says a three-year secondment with Airbus, is a 'once in a lifetime' opportunity to influence the next generation of human-centric industrial cyber defences.*

Dr Phil Morgan, an Associate Professor at Cardiff University, believes robust cybersecurity is critical in industries such as aerospace. "Innovation in aviation, space, and defence technologies requires human-centred as well as hardware and software-based cybersecurity", he says. "Ensuring the security of industrial systems and information is vital not only for commercial confidentiality but also for leading-edge innovation, design and production."

Phil is Director of Cardiff University's Human Factors Excellence Research Group, a network of more than 40 internationally-renowned academics who specialise in fields from cognitive science to cyberpsychology. "Human factors research draws on areas such as engineering, psychology, computer science and neuroscience to facilitate the optimal



design of products, processes, and systems which meet people's psychological and physical needs", Phil explains. "Work in this area enables us to optimise safety, efficiency and human performance."

In March 2019, the Cardiff academic embarked on a three-year secondment to become Technical Lead for aerospace pioneer Airbus' Cyber Psychology and Human Factors Group and the recently launched Airbus Accelerator in Human-Centric Cyber Security (H2CS). Based at the company's cyber innovation hub in Newport, Wales, the team conducts cutting-edge research on human susceptibility to cyberattacks. Its researchers consider how to draw upon human attributes such as adaptability, self-recognition, and problem-solving as a significant line of cyber defence. "Stories about people leaving USB drives full of sensitive data on public transport create the sense humans are the weak link in the cybersecurity chain. However, the truth is people can be an organisation's greatest cybersecurity asset", Phil argues. "Creating defences which capitalise on human cognitive

abilities and behaviours - rather than arbitrarily telling people what they can and cannot do - leads to better cybersecurity. You cannot assume the most sophisticated hardware and software is the answer to seamless cybersecurity alone. The key is to design training, systems and processes with the end-user in mind."

Early on in his secondment, Phil secured funding from Cardiff University's Business Boost Impact Accelerator Account (IAA) to support his collaboration with Airbus. The programme is part of the block awards made to research organisations by the ESRC to accelerate the impact of research, by giving institutions the flexibility to respond to impact opportunities in responsive and creative ways. The funding supported Research Associate Dr Phoebe Asquith and PhD student Laura Bishop to complete two-month placements in the Cyber Psychology and Human Factors Group in 2019. Through its Endeavour Wales innovation fund - a joint initiative with the Welsh Government - Airbus has since appointed Phoebe to the team full-time. Cardiff University has also supported Laura and fellow PhD student, George Raywood-Burke, to join the team on an ongoing basis. With future collaborations with academia, industry and government, and overseas ventures planned for the future, Phil expects the team will continue to grow.

Phil is also optimistic the findings of his collaboration with Airbus will lay the foundations to develop bespoke cybersecurity training programmes, computer systems and interfaces tailored to individual needs. "The potential to make a positive impact on Airbus' more than 135,000 staff around the globe and the sector as a whole is huge", he asserts.

As an academic in a practice-based field, Phil has enjoyed many successful collaborations with industry partners in the 15 or so years since he completed his PhD in experimental cognitive psychology. However, he believes the secondment - which means him spending 80 per cent of his time on-site embedded within Airbus - is unique. "The project gives the Cyber Psychology and Human Factors Group and H2CS a unique and game-changing chance to work with the wider Airbus security team to shape the human-centric approach of an industry cybersecurity leader", Phil explains. "Importantly, it also gives Airbus a chance to create opportunities for the wider research community. The company is leading the way in cybersecurity, and our work has the potential to create a gold standard when it comes to the human focus for other organisations in the area."

During his one day a week back at Cardiff University, Phil is excited to share experiences from the Airbus project. "There is no better way to engage students in applied psychology and human factors than through compelling cases of its practical applications. I enjoy getting back in front of an audience of keen minds to impart the outcomes of this significant collaboration with Airbus", he enthuses. "I hope my experience working with and within industry will inspire the next generation of human factors practitioners and researchers to make an impact on cybersecurity, cyberpsychology, and other critical areas where cutting edge innovation, research and impact are crucial."



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