

25th European Conference on Cyber Warfare and Security, 2026

The European Conference on Cyber Warfare and Security (ECCWS) is a distinguished academic conference that has been held annually for 25 years, attracting a global audience of scholars, researchers, military professionals, and industry experts. The conference is dedicated to advancing knowledge and understanding of cyber warfare and cybersecurity through the presentation and discussion of high-quality, peer-reviewed research.

The Proceedings of the 25th European Conference on Cyber Warfare and Security, 2026 includes academic research papers, PhD research papers, Master's Research papers and work-in-progress papers which have been presented and discussed at the ECCWS 2026 conference. The proceedings are of an academic level appropriate to a professional research audience including graduates, post-graduates, doctoral and post-doctoral researchers. All papers have been double-blind peer reviewed by members of the Review Committee.

Aims and Scope

ECCWS provides a comprehensive platform for the exploration and discussion of the complex and evolving challenges in the fields of cyber warfare and cybersecurity. It seeks to bridge the gap between academic research, practical applications, and policy-making, fostering interdisciplinary collaboration and the exchange of ideas. The conference focuses on both theoretical and applied aspects of cybersecurity and cyber defence, with an emphasis on the implications for national security, military strategy, and global stability.

Topics Covered

The call for papers for the ECCWS conference asked for contributions that considered the following topics. In addition, the committee welcomed papers on a number of specialist mini-tracks which can be seen at the end of this list.

Cyber Warfare Strategies and Tactics

- *Offensive Cyber Operations*
- *Defensive Cyber Operations*
- *Cyber Deterrence and Cyber Power.*

Cyber Defence and Security

- *Threat Detection and Incident Response*
- *Security Architectures*
- *Vulnerability Assessment and Management including pentesting*

Cyber Threat Intelligence

- *Adversary Tactics, Techniques, and Procedures (TTPs)*
- *Threat Intelligence Sharing*
- *Advanced Persistent Threats (APTs).*

Critical Infrastructure Protection

- *Protection of Energy, Water, and Transport Systems*
- *Financial Sector Security*
- *Telecommunications Security*

Military Applications of Cyber Technologies

- *Cyber Command and Control Systems*
- *Cyber-Physical Systems in Defence*
- *Information Warfare and Psychological Operations.*

Legal and Ethical Issues in Cyber Warfare

- *International Law and Cyber Conflict*

- *Ethical Dilemmas in Cyber Operations*
- *Cyber Espionage and Sovereignty.*

Emerging Technologies and Innovations

- *Artificial Intelligence in Cybersecurity*
- *Quantum Computing and Cybersecurity*
- *Blockchain for Cybersecurity*

Cybersecurity Education and Training

- *Military Cyber Training Programs*
- *Cybersecurity Curriculum Development*
- *Capacity Building in Cybersecurity*

Policy, Governance, and International Cooperation

- *National Cybersecurity Strategies*
- *International Cyber Norms and Agreements*
- *Public-Private Partnerships in Cybersecurity*

Cybercrime and Law Enforcement

- *Digital Forensics*
- *Countering Cybercrime*
- *Legal Frameworks for Cybercrime*

Experts in the field proposed mini tracks on the following topics. Papers accepted on these topics after the double-blind peer review process were presented as mini tracks at the conference and are also published in these proceedings.

- *Software Supply Chain Security Risks*
- *Smart Systems Under Siege: Analyzing Cybersecurity Risks and Real-World Incidents*

The programme from the 2026 conference can be downloaded from <https://papers.academic-conferences.org/index.php/eccws> and full details about the conference can be seen from the conference website: <https://www.academic-conferences.org/conferences/eccws/>

ECCWS Preface

These proceedings represent the work of contributors to the 25th European Conference on Cyber Warfare and Security (ECCWS 2026), Hosted by the University of Nottingham, UK on 29-30 June 2026. The Conference Co-Chairs are Steven Furnell from the University of Nottingham, UK, and Dimah Almani, from Shaqra University, Saudi Arabia.

ECCWS is a well-established event on the academic research calendar and now in its 25th year conference remains the opportunity for participants to network and share ideas. The following conference proceedings contain a diverse range of papers, and the conference continues to be a forum for technical, theoretical and practical exchange about the study, management, development and implementation of systems and concepts to improve cyber security and combat cyber warfare.

The opening keynote presentation is given by Dr Lorna Kirkby, Department for Science, Innovation and Technology of the UK Government on the topic of *Securing the Digital Future: The UK Government's Approach to Cyber Security*. The second day of the conference will open with an address by Prof. Adam Joinson, from the University of Bath, UK speaking on the *Mapping the Impact of Future & Emerging Technologies on Cybersecurity*.

With an initial submission of 190 abstracts, after the double blind, peer review process there are 109 Academic research papers, 4 PhD research papers, 3 Masters Research papers, 1 Non-Academic Paper and 7 work-in-progress papers published in these Conference Proceedings. These papers represent research from Australia, Canada, Czech Republic, Finland, France, Germany, Greece, Netherlands, Nigeria, Norway, Pakistan, Portugal, Saudi Arabia, Singapore, South Africa, Sweden, Switzerland, Turkey, UK, United Arab Emirates, and USA.

We hope you enjoy the conference.

Steven Furnell and Dimah Almani

Conference Co-Chairs

Nottingham, UK

June 2026

Biographies of Chairs and Keynote Speakers

Conference and Programme Chairs



Prof. Steven Furnell is Professor of Cyber Security in the School of Computer Science at the University of Nottingham. His research interests include security management and culture, usability of security and privacy, and technologies for user authentication and intrusion detection. He has authored over 400 papers in international journals and conference proceedings, as well as various books, book chapters, and industry reports. Steve is the UK representative to Technical Committee 11 (security and privacy) within the International Federation for Information Processing, a board member of the Chartered Institute of Information Security, and a member of the Steering Group for the Cyber Security Body of Knowledge (CyBOK) and the Careers and Learning Working Group within the UK Cyber Security Council.



Dr. Dimah Almani completed her PhD in Cybersecurity at the University of Nottingham, specialising in trust mechanisms for vehicle-to-vehicle (V2V) communication. Her research focused on improving security in connected vehicles using simulation tools such as Veins, SUMO, and OMNeT++. She also holds a Master's degree in Computer Science from Nova Southeastern University, Florida, where she investigated cybersecurity vulnerabilities in smart transportation systems. With over 10 years of teaching experience, Dimah has developed and delivered courses on emerging technologies, supervised postgraduate students, and contributed to cybersecurity research. She is skilled in C++, Python, and MATLAB, with strong knowledge in network simulations and mathematical modelling. Dimah has served as an IEEE reviewer and held academic leadership roles including Coordinator of Quality Control and E-Learning Program Manager. She received the IBM Artificial Intelligence Analyst – Explorer Award in 2020. Her work connects theoretical models with real-world applications in cybersecurity and intelligent transportation systems.

Keynote Speakers



Dr Lorna Kirkby is Head of Software Security Policy for the Department for Science, Innovation and Technology. This includes leading work to develop the UK government's Software Security Code of Practice and how to drive uptake of these principles throughout digital supply chains as part of the Government's longstanding advocacy of a secure by design approach to technology development.



Adam Joinson is Professor of Information Systems at the University of Bath. Adam has been working on the intersection between behavioural science, technology and security for over 25 years, including seminal work that helped establish 'cyberpsychology' as a field of study. He has also worked in Government applying behavioural science to security, and has led multiple large scale research programmes. He is co-director of the Bath Institute for Digital Security and Behaviour (www.idsb.ac.uk) as well as co-investigator on the EPSRC CRANE Network Plus (www.crane.ac.uk). His website is: <https://researchportal.bath.ac.uk/en/persons/adam-joinson/>

Mini Track Chairs



Dr Hossein Abroshan is a cybersecurity researcher focusing on adversarial machine learning and applied AI for cyber defence. His recent work includes building AI poisoning-detection pipelines; developing AI-driven ransomware detection for OT; and AI-powered phishing detection using human factors. He has also developed AI and cybersecurity materials for CyBOK (ai4cs.uk and secai.uk). Hossein is the director of cybersecurity research group and director of MSc Cyber Security course at ARU, Cambridge, and has been leading/supervising several cybersecurity and AI projects in various sectors. Hossein's interests include AI security and trustworthy AI, human factors in cyber security, and protection of critical infrastructures.



Tiago Cruz is Associate Professor at the Department of Informatics Engineering of the University of Coimbra. He is a Senior Researcher at the Center for Informatics and Systems of UC, having started his research activity in 2001. His research interests cover areas such as management systems for communications infrastructure and services (operator and data center environments), embedded computing, critical infrastructure security, broadband access network device and service management. He has been involved in various European- and industry-funded research projects related with cyber-security, autonomous management, content delivery infrastructures or wireless WAN technologies, as well as several national projects, in partnership with telecommunications operators and research agencies, with both technical and management activities.



Christoph Lipps, graduated in Electrical and Computer Engineering at the University of Kaiserslautern, where he meanwhile lectures as well. He is a Senior Researcher at the German Research Center for Artificial Intelligence (DFKI) in Kaiserslautern, Germany, heading the Cyber Resilience & Security Team of the Intelligent Networks Research Department. His research focuses on Physical Layer Security (PhySec), Physically Unclonable Functions (PUFs), Artificial Intelligence (AI) Methods, Security and Trust in the Sixth Generation (6G) Wireless Systems and all aspects of network and cyber security. He is the author of numerous scientific publications, member of the IEEE, ACM and VDE, as well as of the scientific advisory boards and technical program committees of multiple international conferences and journals.



Iain Reid is a Senior Lecturer in Cybercrime in the School of Criminology and Criminal Justice at the University of Portsmouth in the UK. He is an Expert Fellow of SPRITE+, Member of SASIG, and was previously a Founding Committee Member of the Defence and Security Psychology Section. In addition, Iain is the Course Leader for the Professional Doctorate in Security Risk Management and is the Cybercrime and Cybersecurity Research Group Lead. Iain's research interests focus on defensive cyber deception, software development and security, cyber conflict, and lie detection



Char Sample is an assistant professor of cybersecurity at Marshall University. Dr. Sample has 40 years of industry experience beginning in software development, through product test and integration, and finally as a researcher (both applied and academic). Dr. Sample's research areas are all cybersecurity related with an interest toward decision-making in cybersecurity.



Paulo Simões is Associate Professor at the Department of Informatics Engineering of the University of Coimbra, Portugal. He is also a senior researcher at the Centre for Informatics and Systems of the University of Coimbra. He has more than 15 years of experience in European research projects (FP6, FP7, H2020, COST...), with technical and managerial duties, and he regularly leads industry-funded technology transfer projects for companies such as telecommunications operators and energy utilities. His research interests include Network and Infrastructure Management, Security, Critical Infrastructure Protection and Virtualization of Networking and Computing Resources. He has over 160 publications in refereed journals and conferences, and he regularly serves on program committees of international conferences of these areas. He is also Senior Member of the IEEE Communications Society.



Jill Slay is currently the University of South Australia SmartSat Professorial Chair in Cybersecurity. Her work focuses on the context of developing a national technical agenda in satellite cybersecurity and resilience with Industry and government. Previous appointments have included Optus Chair in Cybersecurity at La Trobe University and Founding Director of the Australian Centre for Cyber Security at the Australian Defence Force Academy.

ECCWS Review Committee

ECCWS is fortunate to have a significant number of international experts in the field willing to review papers. Care is taken to ensure that a fully double-blind peer review process is followed, and reviewers are not selected if they have any research or organisational connection to the author/s.

Dr Mohd Faizal Abdollah, University Technical Malaysia Melaka, Malaysia; ` Hossein Abroshan, Anglia Ruskin University, UK; Dr William Adams, University of Michigan/Merit Network, USA; Dr Ertugrul Akbas, Esenyurt University, Turkey; Dr Ertuğrul Akbas, Istanbul Esenyurt University, Turkey; Dr Alaa Al Sebae, warwick university, uk; Prof Hamid Alasadi, Basra University, Iraq; Dr Kari Alenius, University of Oulu, Finland; Prof Antonios Andreatos, Hellenic Air Force Academy, Greece; Dr Olga Angelopoulou, Royal Holloway, University of London, UK; John Anohar, Higher Education Dept, India; Dr Leigh Armistead, Edith Cowan University, Australia; Dr Sajad Bagheri Baba Ahmadi, Flinders University, Australia; Dr Hayretudin Bahsi, Tallinn University of Technology, Estonia; Dr Dragos Barbieru, CAROL I National Defence University, Romania; Prof Jorge Barbosa, Coimbra Polytechnic, ISEC, Portugal; Stacey Baror, University of Pretoria, South Africa; Prof Matt Bishop, University of California at Davis, USA; Prof George Chiladze, The University of Georgia, Georgia; Dr Sabarathinam Chockalingam, Institute for Energy Technology, Norway; Dr Paul Crocker, Universidade de Beira Interior, Portugal; Prof Tiago Cruz, University of Coimbra, Portugal; Dr Christian Czosseck, CERT Bundeswehr (German Armed Forces CERT), Germany; Josef Demergis, Neapolis University, Paphos, Greece; Dr Amir Djenna, University of Constantine, Algeria; Prof Patricio Domingues, Polytechnic Institute of Leiria, Portugal; Paul Dowland, Edith Cowan University, Australia; Marios Efthymiopoulos, Political Science Department University of Cyprus, Cyprus; Dr Colin Egan, University of Hertfordshire, Hatfield, UK; Dr Ruben Elamiryan, Public Administration Academy of the Republic of Armenia, Armenia; Dr Thaddeus Eze, University of Chester, UK; Dr Mohammad Faisal, University of Malakand, Pakistan; Prof Eric Filiol, ENSIBS, Vannes, France & CNAM, Paris, France; Prof Steve Furnell, University of Nottingham, UK; Dr Dimitra Georgiou, University of Piraeus, Greece; Assistant Professor RENUKA GOLLA BALA, Madanapalle Institute of Technology & Science, India; Dr Tapiwa Gundu, Nelson Mandela University, South Africa; Bill Hutchinson, Edith Cowan University, Australia; Nor Badrul Anuar Jumaat, University of Malaya, Malaysia; Dr Connie Justice, Purdue School of Engineering and Technology, IUPUI, USA; Maria Karyda, University of the Aegean, Greece; Anthony Keane, Technological University Dublin, Ireland; Prof Mortaza Kokabi, Shaheed Chamran Univ.,Iran; Prof Ahmet Koltuksuz, Yasar University, Dept. of Comp. Eng, Turkey; Prof Prof. Thamizhmaran Krishnamoorthy , Government College of Engineering, Bodinayakanur, Theni, Tamilnadu, India; Prof Shreyas Kumar, Texas A&M University, USA; Peter Kunz, Hexagon Geosystems, Germany; Martti Lehto, National Defence University, Finland; Christoph Lipps, German Research Center for Artificial Intelligence, Germany; Assc Manmeet Mahinderjit Singh, University Sains Malaysia, Malaysia; James Malcolm, University of Hertfordshire, UK; Dr Silvestre Malta, Instituto Politécnico de Viana do Castelo Escola Superior de Tecnologia e Gestão, Portugal; Arun Mamgai, Red Hat Inc, USA; Dr Arianit Maraj, AAB College-Faculty of Computer Sciences, Kosovo; Ioannis Mavridis , University of Macedonia, Greece; Rob McCusker, Charles Sturt University, UK; Prof Marius-Iulian Mihailescu, SPIRU HARET University, Romania; Atefeh Mohseni Ejiyeh, University of California, Santa Barbara, USA; Antonio Muñoz, University of Málaga, Spain; Dr Stefania Loredana Nita, Military Technical Academy "Ferdinand I", Romania; Prof Abdelnaser Omran, Libyan Academy for Postgraduates Studies , Libya; Analyst Oludolamu Onimole, University of Glasgow, United Kingdom; RESEARCH SCIENTIST KAMAL CHANDRA PAUL, GLOBAL RESEARCH CENTRE (GRC), MALAYSIA & BANGLADESH, MALAYSIA; Prof Teresa Pereira, Instituto Politécnico de Viana do Castelo, Portugal; Full-time Doctoral Students Wadduwage Shanika Perera, Sam Houston State University, Texas, United States; Michael Pilgermann, Technische Hochschule Brandenburg - University of Applied Sciences, Germany; Prof Pedro Pinto, Instituto Superior

de Engenharia do Porto (ISEP), Portugal; Dr Ajeet Singh Poonia, Full time academic, Bikaner Technical University, Rajasthan; Prof Maria-Magdalena Popescu, Carol I National Defence University, Romania; Dr Trishana Ramluckan, University of KwaZulu-Nata, South Africa; Dr Iain Reid, University of Portsmouth, UK; Dr Mark Reith, Full time academic, Air Force Institute of Technology; Dr Neil Rowe, US Naval Postgraduate School, Monterey, USA; Prof Vitor Sa, Polytechnic of Porto, Portugal; Dr Huwida Said, Zayed University, UAE; Dr Char Sample, Carnegie Mellon University/CERT, USA; Prof Henrique Santos, University of Minho, Portugal; Prof Leonel Santos, Polytechnic of Leiria, Portugal; Dr Neetesh Saxena, Cardiff University, UK; Dr Keith Scott, De Montfort University, UK; Dr Yilun Shang, Northumbria University, UK; Mr. Nakul Singh, Righ Inc. Palo Alto, CA, United States; Dr Siphesihle Sithungu, University of Johannesburg, South Africa; Prof Jill Slay, University of South Australia, Australia; Prof Sharmila SP, Siddaganga Institute of Technology Tumakuru, Karnataka, India, India; Dr Lee Speakman, University of Chester, UK; Dr Joseph Spring, University of Hertfordshire, UK; Dr Sara Sutton, Grand Valley State University, USA; Prof Marco Valeri, Niccolò Cusano University, Italy; Dr Allison Wylde, GCU London, UK; Prof Omar Zakaria, National Defence University of Malaysia, Malaysia.