



DAFNI

**Data & Analytics Facility
for National Infrastructure**

Annual Conference 2026

**Rhodes House, Oxford, UK
10th September 2026**



Climate and Security Resilience

With dual focus on Government Industrial Strategy and Clean Energy

The DAFNI platform supports research that works to provide the UK with a world-leading infrastructure system that is more integrated, efficient, powerful, reliable, resilient and affordable.

In the DAFNI strategy's long-term vision are plans to sustain and expand its role as a leading platform for the UK's infrastructure systems research community. The strategy emphasises enabling collaboration across academia, industry, and government, integrating DAFNI within the UK's Digital Research Infrastructure, and supporting national policy objectives.

It prioritises the adoption of advanced technologies such as AI and digital twins, the promotion of FAIR data principles, and the development of a skilled, engaged community. By focusing on accessibility, trust, security, and targeted training, DAFNI seeks to drive innovation, inform policy, and support the development of resilient and sustainable infrastructure across the UK.



DAFNI

**Data & Analytics Facility
for National Infrastructure**

Contents

- 4. Welcome
- 5. DAFNI Strategy Board
- 6. DAFNI Team
- 7. Programme
- 10. Keynote Speakers
- 13. Invited Speakers
- 17. Lightning Talks
- 27. Workshops
- 29. User Case Studies

Audience participation is welcomed throughout various points in the programme.



Welcome

Welcome to the DAFNI Conference 2026! I am pleased to welcome you all to this year's conference at Rhodes House, University of Oxford.

Our conference this year is structured around two core themes – Climate and Security Resilience, and Government Industrial Strategy, with a focus on Clean Energy.

I am delighted to welcome our keynote speakers, who bring a great breadth of expertise across our core themes. Margaret Read and Jim Hall bring insight and experience from their respective roles as Interim Director of Infrastructure and Policy at NISTA, and Professor of Climate and Environmental Risk at the University of Oxford.

Our invited speakers are showcasing collaborative research on digital twins. Professor Femke Vossepel, TU Delft is discussing the UrbanAir project. James Daniel from UK Power Networks and Elliot Christou from Connected Places Catapult are presenting on the latest developments from CReDO, and Professor Campbell Booth from the University of Strathclyde will be talking about the Ensign project.

The goal of UrbanAIR is to develop a new digital twin that supports decision-makers in urban areas to deal with design dilemmas in atmospheric heat and air quality to maximise the health and socio-economic well-being of its citizens affected by climate change.

The Climate Resilience Decision Optimiser (CReDO) is an outcome of a groundbreaking project that is connecting digital twins across infrastructure and services to enable asset managers and planners to create greater resilience by anticipating system-wide consequences.

The Ensign Project is creating an Integrated Energy System Digital Twin (IES-DT) to help the UK manage the complexity of future multi-vector energy networks.

By linking digital twins across electricity, heat, hydrogen and industrial clusters, it will enable smarter planning, real-time operation and whole-system optimisation.

Please join me in offering a very warm welcome to our first DAFNI Fellows cohort! We were hugely impressed by the variety and quality of the applications we received for our DAFNI Fellowship Programme, and my colleagues and I are very excited that they will be sharing their endeavours so far and plans for the year ahead with us today. Each Fellow is now an ambassador for DAFNI, being involved in sustainable research, promotion of their research within the DAFNI Centre of Excellence, building networks across government, industry and academia, and inputting into DAFNI's Technical Roadmap.

EPSRC's Supergen Energy Networks Hub and industry partners are leading our Clean Energy interactive session, exploring how energy networks researchers are already delivering real-world impact across the clean energy transition by working with industrial partners, and how our wider research community can contribute. It is critical that DAFNI's goals align with the UK government's goals to deliver clean power by 2030, to make the UK a clean energy superpower. We will be gaining feedback from the community on the day and producing a Clean Energy Impact Report which we make publicly available after the conference. We invite you to share your opinions and be involved!

DAFNI continues to develop and thrive, underpinned by the continuous dedication of our team and their unwavering commitment to computing excellence, in partnership with our wonderful user community. Today reflects the achievements of the past year and the body of research that addresses the increasingly complex scientific challenges that we face today.

I hope you have an enjoyable and informative day.

Brian

Dr Brian Matthews has over 30 years of experience in R&D development in computing, with a focus on tools, methods and standards for managing accessing research data from scientific experiments.

He took a leading role in the development of the data management infrastructure that supports the ISIS Neutron and Diamond Light Sources, and has worked extensively on European programmes on data infrastructures.

Brian leads the DAFNI team, developing data and modelling infrastructure to support research into national infrastructure, and is Co-Investigator on projects extending its use including #OpenCLIM and the UK Centre for Greening Finance and Investment initiative.

He is Co-Investigator and Technical Lead on the Physical Sciences Data Infrastructure (PSDI) Service, one of EPSRC's National Research Facilities.

DAFNI Strategy Board



Professor Jim Hall
Oxford University



Professor Julien Harou
University of Manchester



Professor Asaad Faramarzi
University of Birmingham



Professor Liz Varga
University College London



Dr Ben Waterson
University of Southampton



Professor Michael Batty
University College London



Professor Daniel Coca
University of Sheffield



Professor Nik Lomax
University of Leeds



Dr Giuliano Punzo
University of Sheffield



Professor Phil James
Newcastle University



Dr Juan Bicarregui
STFC



Professor Theo Tryfonas
University of Bristol



DAFNI Team



Dr Brian Matthews
DAFNI Programme Lead



Aaron Larkins
Software Engineer



Abhishek Mazumdar
Senior Research Software Engineer



Akhil Dubakunta
Software Engineer



Alison Oliver
Research Community Manager



Archit Mantry
Project Co-Ordinator



Bethan Perkins
Group DAFNI Lead



Catherine Dhanjal
DAFNI Media Manager



Elizabeth Mamtsits
Research Software Engineer



Jack Haydock
Software Developer



James Acris
Senior Research Software Engineer



Jens Jensen
CRDO Security Architect



Katie Cartmell
Project Delivery Manager



Kyle Stevenson
User Liaison



Lewis Sampson
Research Software Engineer



Lilith Cole
Senior Research Software Engineer



Lizzie Salmon
Scientific Computing Graduate



Lyndsey Harding
Programme Support Officer



Marion Samler
Business Development Manager



Rose Dickinson
Senior Software Engineer / Technical Lead



Saiful Khan
Senior Data Scientist



Sarah Byrne
Senior Software Engineer / Product Owner



Dr Server Kasap
DevOps Engineer



Teagan Zoldoske
Data Curation Officer



Tom Kirkham
Science Lead



Conference Programme

Morning Programme

Morning Chair: Professor Theo Tryfonas, University of Bristol

09:00 Networking Breakfast

09:30 Keynote presentation - Margaret Read

National Infrastructure and Service Transformation Authority (NISTA)

10:00 Technical Talk - DAFNI Team

10:30 Lightning Talks - DAFNI Fellows

11:10 Networking Break

11:40 Invited Speakers

UrbanAIR Project,
Professor Femke Vossepoel, TU Delft

CReDO + Programme,
James Daniel, UK Power Networks
and Elliot Christou, Connected Places Catapult

ENSIGN Project,
Professor Campbell Booth, University of Strathclyde

12:40 Networking Lunch

Afternoon Programme

Afternoon Chair: Professor Asaad Faramarzi, University of Birmingham

- 13.45** **Keynote presentation - Professor Jim Hall**,
University of Oxford
- 14.15** **Clean Energy Introduction**
- 14.30** **Networking Break**
- 15.00** **Government Industrial Strategy, Clean Energy interactive session**
EPSRC's Supergen Energy Networks Hub and Industry Partners
- 16.30** **Close - Brian Matthews**, DAFNI Leader



The background of the slide features a dark blue color with a light blue geometric pattern. This pattern consists of several interconnected circles (nodes) of varying sizes, linked by thin, light blue lines, creating a network-like structure that spans the entire page.

Keynote Speakers



Professor Jim Hall

University of Oxford

System Simulation as the Basis for System Resilience

Infrastructure systems face diverse and intensifying threats. This summer we have seen the disruption to transport, energy and water infrastructure from extreme heat, whilst also being aware of security threats from hostile actors. We are expecting ageing infrastructure systems to perform with high reliability in increasingly challenging circumstances, with less money available for investment and maintenance. That can only be achieved by being much smarter in the ways in which we operate infrastructure systems, which fundamentally rests on digital

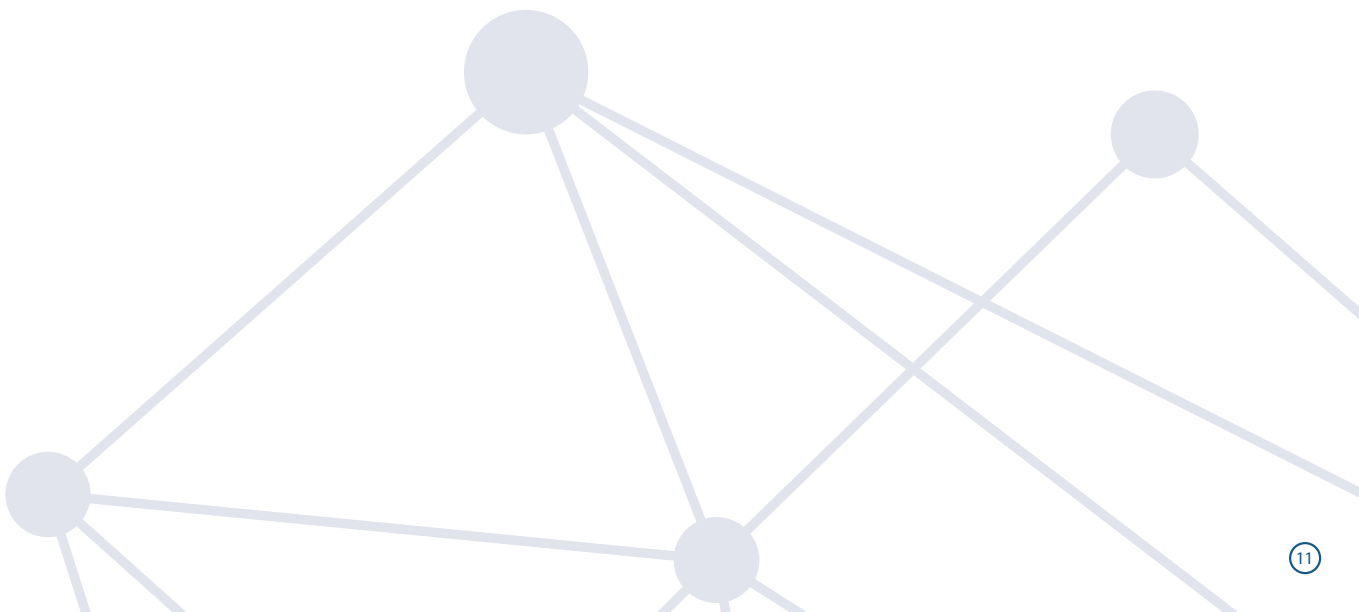
technologies. Simulation modelling provides the basis for testing and optimizing systems in silico. Digital twinning closes the loop between simulation and action. Predictive modelling enables optimal resource allocation and maintenance interventions. Though infrastructure operators, from water utilities to the power sector, recognise their digital future, progress is patchy and lacks integration. This talk will explore some of the barriers and examine the steps that can be taken to realise the potential of system simulation for system resilience.

Professor Jim Hall

Professor Jim Hall, FEng, FRS, is Professor of Climate and Environmental Risks in the School of Geography and the Environment, a Senior Research Fellow in the Department of Engineering Science and fellow of Linacre College.

His research focuses upon management of climate-related risks in infrastructure systems, in particular relating to various dimensions of water security, including flooding and water scarcity.

Jim is also Chair of DAFNI's Strategy Board.





Margaret Read

National Infrastructure and Service Transformation Authority (NISTA)

Improving Infrastructure Resilience

Margaret will set out the role of infrastructure (both economic and social) in creating a resilient UK, areas of concern and NISTA's contribution to solving these issues, including providing certainty and stability, creating more resilient supply chains and delivering greater infrastructure capacity

both now and in the face of a future climate. She will cover the essential roles of asset management and data, including how AI will help (or potentially hinder). She will also reiterate NISTA's invitation to the research community to collaborate.

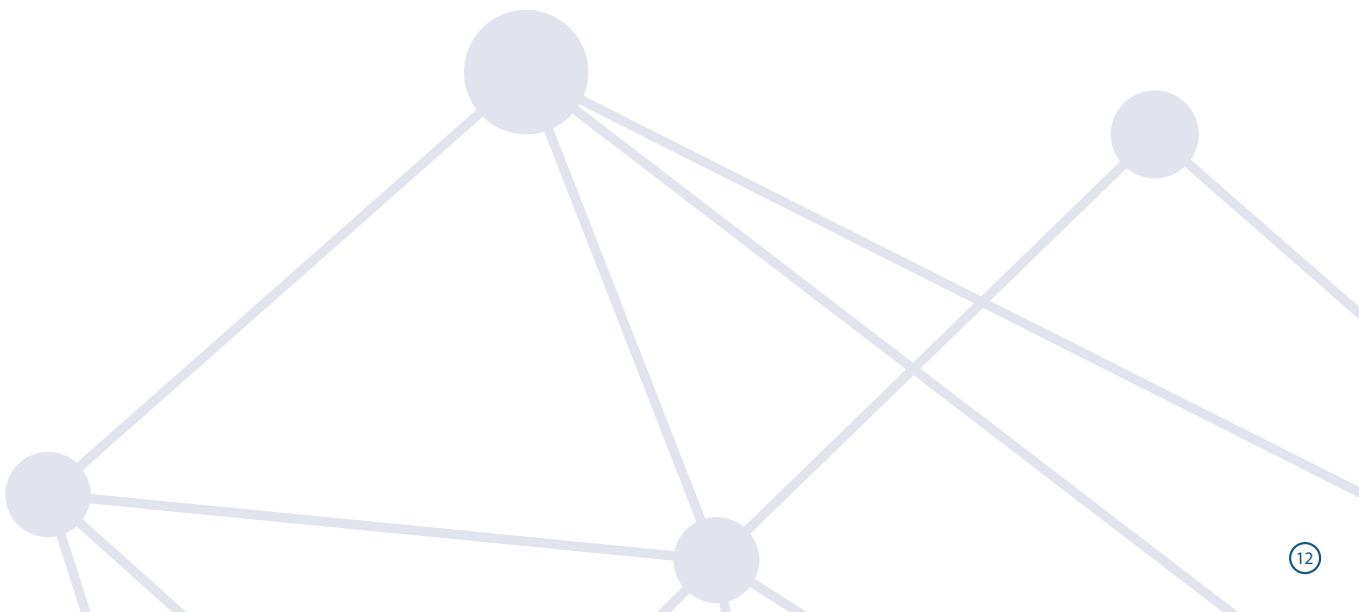
Margaret Read

Margaret Read is Deputy Director for System Change at the National Infrastructure and Service Transformation Authority (NISTA).

Margaret was previously Director of Policy at the National Infrastructure Commission, where she led the Commission's policy work on energy, water and wastewater, flood risk management and infrastructure resilience. Before her role at the Commission, she worked as part of the RAPID leadership team, a joint Ofwat, Environment

Agency and Drinking Water Inspectorate unit to speed up water supply infrastructure delivery.

Margaret has extensive experience leading policy development in Whitehall, principally on water supply, flood and coastal erosion risk management, access to the environment and a number of other environmental issues. Her teams have supported Ministers in developing primary and secondary legislation and in working with delivery bodies to implement policy.





Invited Speakers



Femke Vossepoel

TU Delft

UrbanAIR: Towards a Digital Twin for Decision Support in Urban Heat and Air Quality

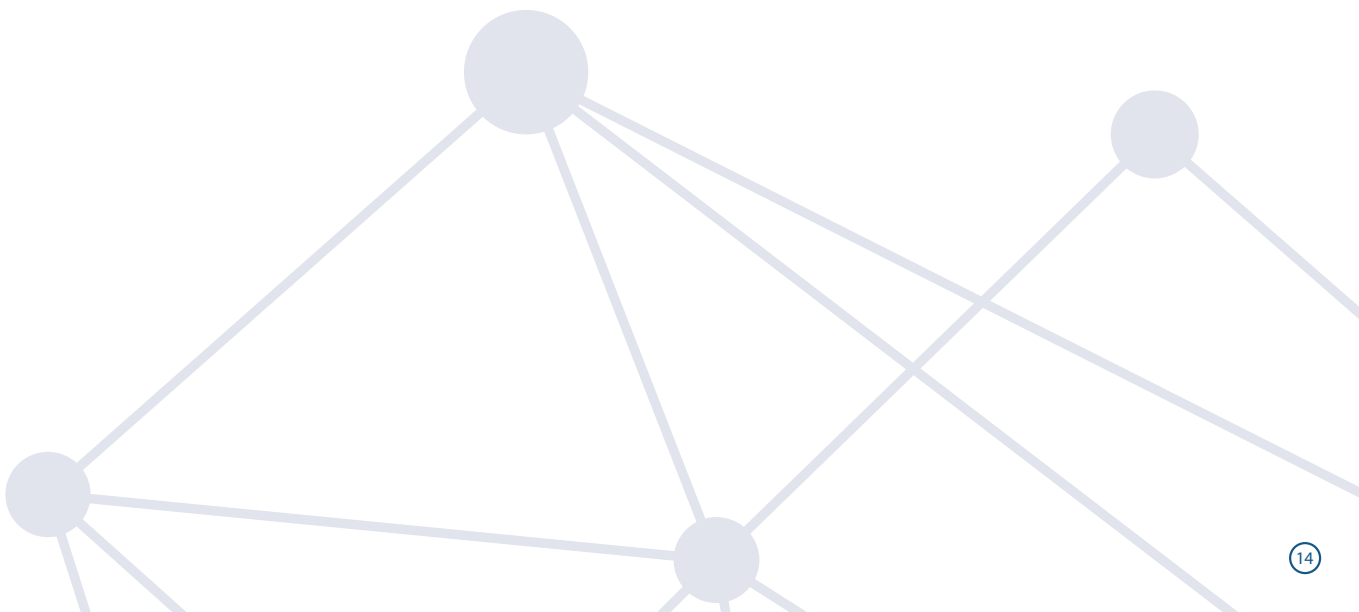
The EU project UrbanAIR develops a digital twin that supports decisions related to urban air flow and -temperature. Cascading from large-scale climate down to street-level flow, the modular digital twin helps cities to adapt to climate change and respond to hazards. The presentation will

showcase applications in Barcelona and Antwerp, and illustrate potential applications for other cities, including Paris, Rotterdam, and Bristol. UrbanAIR allows municipalities to make balanced decisions on present-day dilemmas, leading to healthier, more resilient cities.

Femke Vossepoel

As a Professor of Earth System Simulation at Delft University of Technology, Femke Vossepoel leads a research group in data-assimilation research in the geosciences. She has a PhD in Aerospace Engineering from Delft University of Technology and worked on data assimilation for Earth System models at research institutes and universities in the USA, France, and The Netherlands. In 2022, together with Geir Evensen and Peter Jan van Leeuwen, she published an open-access textbook

on data assimilation fundamentals. Femke Vossepoel is a member of the TU Delft Climate Safety and Security Centre (CASS). She advises the Dutch government on environmental impact of the use of the subsurface. Since January 2025, she leads the Horizon Europe project UrbanAIR and coordinates the TU Delft contribution to Destination Earth (DestinE).





James Daniel

UK Power Networks



Elliot Christou

Connected Places Catapult

CReDO+: A cross-Network Digital Twin for Climate Resilience Across Critical Infrastructure

Extreme weather doesn't respect sector boundaries, a single flood can cascade from power to water to telecoms in hours. CReDO+ is a cross-network digital twin that connects data across energy, water and telecoms to reveal these hidden interdependencies.

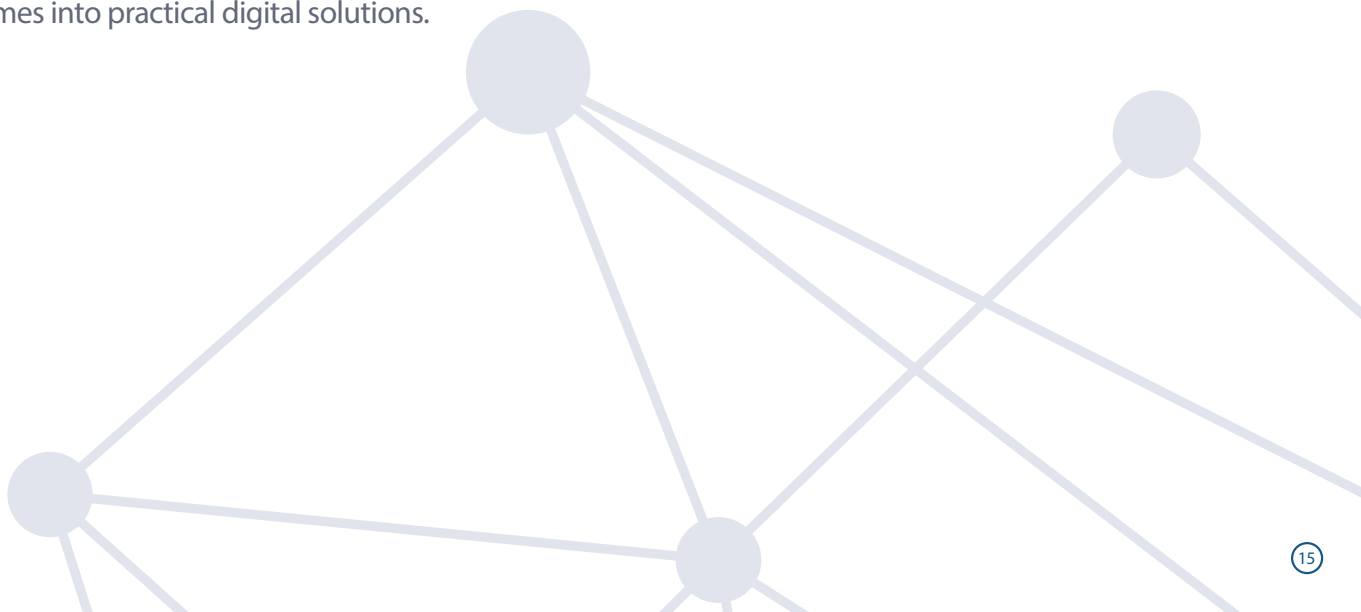
Using Bayesian risk and cascade models, it shows how failures propagate between networks and helps operators target resilience investment where it matters most. This talk shares how CReDO+ turns cross-sector data into evidence-based decisions for a more resilient Britain.

James Daniel

James Daniel is an innovation consultant specialising in digital and data innovation for regulated energy infrastructure. He is currently embedded at UK Power Networks, where he leads discovery projects across capital programmes, network resilience and data-driven decision making. James is leading the CReDO+ SIF Beta project bringing experience of translating complex, multi-partner programmes into practical digital solutions.

Dr Elliot Christou

Dr Elliot Christou is Head of Data and Digital Products at Connected Places Catapult, the UK's innovation accelerator for transport, construction, data infrastructure and local growth. He leads the CReDO programme, which is developing a digital platform to understand cascading climate risk to infrastructure. Elliot has a background in data science and theoretical physics.





Professor Campbell Booth

University of Strathclyde.

From Data to Decisions

The UK's energy system is becoming increasingly complex, with decarbonisation, electrification of heat and transport, and various other factors contributing to this increased complexity and associated challenges. ENSIGN brings together the University of Strathclyde, SP Energy Networks and several other partners to develop an integrated digital twin capable of representing electricity, heat, hydrogen and industrial energy systems.

This presentation will outline the project, explore how digital twins can support understanding and assist in planning and operational decision-making. It will also highlight opportunities for collaboration with DAFNI in creating trusted, interoperable models and twins to support the transition to operating a net-zero energy system infrastructure of the future.

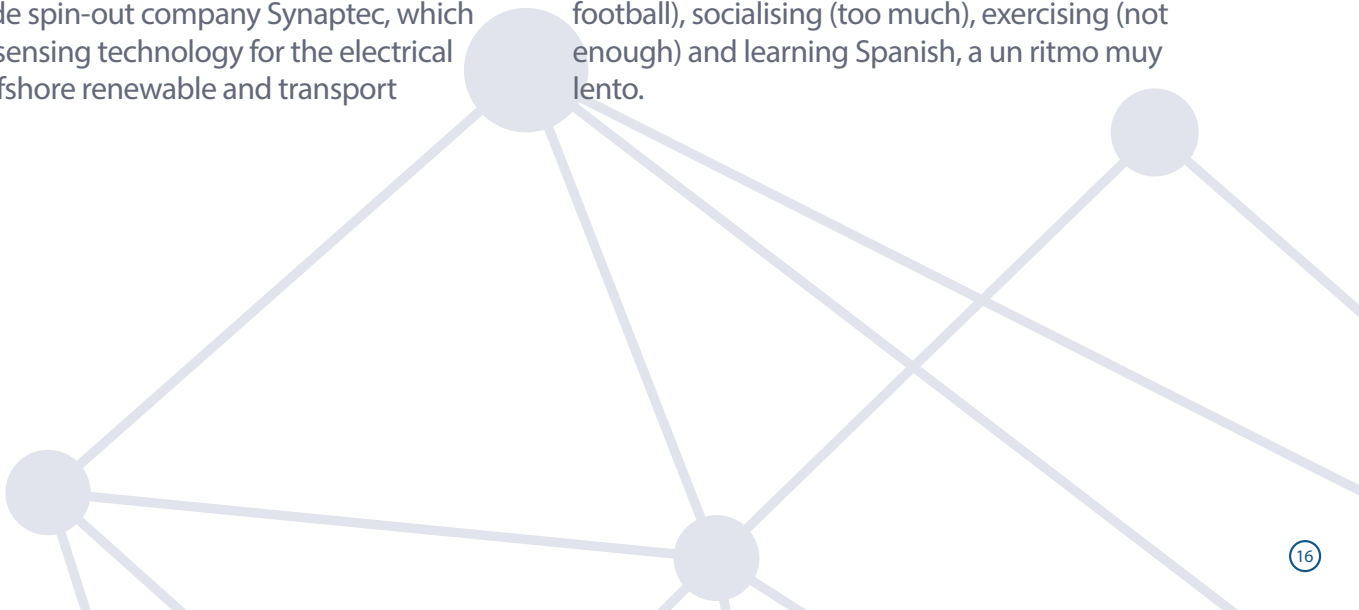
Professor Campbell Booth

Professor Campbell Booth is Associate Principal and Executive Dean in the Faculty of Engineering at the University of Strathclyde. He is a two-time graduate of Strathclyde, Professor Booth began his undergraduate degree in 1987, subsequently obtaining a PhD and taking up a variety of postdoctoral research posts before he was appointed as a lecturer in 2007.

An established authority on power system protection and digital energy systems, he is also the co-founder and Director of Strathclyde spin-out company Synaptec, which provides sensing technology for the electrical power, offshore renewable and transport

industries which recently received significant investment to support growth.

In addition to being overall Principal Investigator (PI) of Ensign, he previously led major projects with National Grid, ScottishPower, and has just completed an EPSRC UK-China grant. He has delivered several invited talks, chaired the IET's Developments in Power System Protection conference, is active on industry working groups and has authored more than 250 publications. In his spare time, he likes travelling, sports (especially football), socialising (too much), exercising (not enough) and learning Spanish, a un ritmo muy lento.



The background of the slide features a dark blue color with a light blue geometric pattern. This pattern consists of several interconnected circles (nodes) of varying sizes, linked by thin, light blue lines. The connections form a complex web-like structure, with some nodes having multiple links and others having fewer. The overall effect is a modern, tech-oriented aesthetic.

Lightning Talks



Dr. Ji-Eun Byun

Assistant Professor in Transport,
Imperial College London

Dr Ji-Eun Byun is a Lecturer at the University of Glasgow, moving to Imperial College London as an Assistant Professor in the Department of Civil and Environmental Engineering in May 2026. Her research addresses the risk and resilience of complex infrastructure networks — transport, energy, water — under natural and human-made hazards, from flooding and earthquakes to ageing assets. Her methodology is built around Bayesian networks: graphical probabilistic models whose visual structure makes them well suited to interdisciplinary collaboration on risk assessment and decision-making for complex systems. She works specifically on lowering the adoption barrier and scalability limits of system risk tools through advanced Bayesian network methods and open-source toolkits.

During the Fellowship, Dr. Byun will deliver two risk-assessment workflows on the DAFNI platform, built around a highway transport network exposed to earthquake hazards. The first will demonstrate a full network risk-assessment cycle, connecting hazard models, component fragilities, system simulations, and decision metrics. The second, more ambitious workflow will integrate alternative simulation functions within a single pipeline, working towards a digital twin environment that supports multi-model, evidence-based discussion of complex networks. She will also engage stakeholders across sectors to explore practically viable shared digital twin environments for managing national infrastructure.





Dr. Xiaohui Chen

Associate Professor, Founder Director of Geomodelling and AI Group, and Deputy Director of Research and Innovation at the School of Civil Engineering at the University of Leeds

Dr Xiaohui Chen is an Associate Professor at the University of Leeds and Founder Director of the Geomodelling and AI Group. His research focuses on physics-informed machine learning (PIML) for engineering and environmental systems, particularly in subsurface hydrology, soil–water processes, and climate resilience. He serves as Task Force Leader for Physics-Informed Machine Learning within the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE), providing international leadership in this emerging field. He is also a Board Member of the Agri-Food and Biosciences Institute (AFBI), Northern Ireland.

Through the DAFNI Fellowship, he aims to develop next-generation AI-for-Science frameworks that integrate physical modelling and data-driven approaches to support national infrastructure resilience. The fellowship will focus on building scalable, trustworthy, and reusable digital tools and infrastructure for environmental risk prediction, including applications in water systems, land degradation, and climate adaptation, while strengthening collaboration between academia, industry, and government.





Dr. Yitian Dai

Post-Doctoral Research Associate
at the University of Manchester

Yitian Dai received her BEng and PhD degrees in Electrical and Electronic Engineering from The University of Manchester in 2019 and 2024, respectively. She is currently a Post-Doctoral Research Associate within the Supergen Energy Networks Hub at Manchester. Her research interests include cascading blackout analysis and resilience assessment of future low-carbon energy systems.

During the fellowship, Yitian will develop open, reusable workflows for climate-driven transmission network resilience assessment, covering asset vulnerability modelling, windstorm

hazard processing, and probabilistic network simulation. These workflows will be hosted on the DAFNI platform to enable reproducible execution and geospatial visualisation of resilience metrics across large-scale electricity networks. She will share these tools through tutorial demonstrations and written guides, and will co-organise workshops bringing together network operators, regulators, and climate scientists to apply the workflows to real infrastructure challenges and embed them in planning practice.





Dr. Amy Green

Research Associate
at Newcastle University

Amy Green is a Research Associate at Newcastle University specialising in climate risk with a focus on extreme rainfall and flooding. Her work sits at the intersection of climate science, statistics, and data visualisation for applied decision-making, with a focus on translating complex environmental data into usable tools for policy and practice. She completed an MMathStat, where she developed a solid foundation in statistical methods for environmental extremes, and went on to complete a PhD focused on rainfall data uncertainties. She co-developed PYRAMID, a near real-time flood risk assessment platform designed in collaboration with stakeholders including the Environment Agency, local authorities, and community flood groups.

Amy's research addresses key challenges in the quality, accessibility, and interoperability of climate data, particularly for extreme rainfall. She has contributed to the development of high-resolution rainfall datasets and hazard indices and has experience building interactive dashboards and tools to communicate risk across sectors. Her current work focuses on creating quality-controlled climate hazard datasets and integrating them into platforms such as DAFNI to support infrastructure resilience planning. She is particularly interested in enabling cross-sector, system-level approaches to climate risk, bridging the gap between research, policy, and real-world decision-making.





Dr. Manuel Herrera

Research Associate
at Newcastle University

Manuel Herrera is a Lecturer in Hydrology at Newcastle University, working at the intersection of urban water systems, infrastructure network modelling, and data-driven decision support. His research develops interpretable, physics-informed, and uncertainty-aware AI approaches to improve the resilience and reliability of critical infrastructure, with applications in flooding, asset degradation, and system performance.

As a DAFNI Fellow, Manuel will advance trustworthy AI for infrastructure through a focused programme centred on a flooding case study demonstrator. Using DAFNI datasets, he will develop reproducible workflows for uncertainty quantification, model interpretability,

and scenario-based analysis, designed to support the adoption of AI in operational decision-making. To this end, Manuel will produce hands-on tutorials from these workflows to strengthen capacity in the DAFNI community. A principal component will be a dedicated workshop on “Trustworthy AI for Infrastructure Asset Management under Climate Risk”, bringing together researchers, infrastructure operators, and policymakers to interrogate model outputs, identify trust requirements, and produce practical guidance. These activities will generate reusable, well-documented tools and reinforce DAFNI as a collaborative platform for national infrastructure resilience.





Professor Qiuchen Lu

Professor at the Bartlett School of Sustainable Construction, University of London (UCL)

Professor Qiuchen Lu is Professor at University College London. Her research integrates digital twins, AI, and informatics to advance smart, sustainable, and resilient cities under climate change. She has secured funding from Engineering and Physical Sciences Research Council and Royal Academy of Engineering and holds a prestigious RAEng/Leverhulme Fellowship (2024/25). She is also a United Nations Office for Disaster Risk Reduction IRDR Young Scientist. She has published over 75 papers and four books and developed the Five-layer Multi-scale Digital Twin Theory (FMDTT), widely adopted across infrastructure sectors. She serves as International Collaboration Coordinator for European Group for Intelligent Computing in Engineering.

As a DAFNI Fellow, she will advance human-centred AI for climate-resilient infrastructure. Building on the IMPACT project, she will develop an integrated Road–Sewer–Human digital twin with industry partners to model interdependent risks across transport, water and flooding systems in London. She will establish a national resilience collaboration network linking leading UK universities, organise workshops with academia, industry, and government, and promote open data and computational skills. Internationally, she will strengthen partnerships to position DAFNI as a global leader. Her fellowship will deliver interdisciplinary innovation, support UK climate resilience priorities, and enable scalable, data-driven decision-making for future cities.





Dr. Tom Mansfield

Data Systems Architect
at Plymouth Marine Laboratory

Dr Tom Mansfield is the Data Systems Architect at Plymouth Marine Laboratory, specialising in scalable and interoperable data infrastructures for marine and environmental science. A background spanning industry, academia and research settings has resulted in a systems-engineering approach to multi-community environmental data architecture development, helping teams create FAIR, machine-readable datasets with long-term value. His research focuses on federated data architectures, trustworthy metadata workflows and the design of interoperable systems that support modelling, digital twins, and environmental decision-making.

As a DAFNI Fellow, Tom will undertake a structured analysis of federated data-architecture approaches emerging across UK offshore-wind evidence programmes. These projects are beginning to

trial aligned, FAIR-focused workflows designed to reduce the time required to transform scientific outputs into actionable and interoperable datasets. Using the industry best practice Lessons Learned methodologies, this fellowship will identify best practices, gaps, and opportunities to strengthen the emerging environmental evidence infrastructures that underpin national-scale modelling and decision support.

This fellowship will promote DAFNI across the marine-data community through demonstrations, workshops, and collaboration within the growing innovation ecosystem in Plymouth and across the UK. The Fellowship will produce practical guidance and exemplars that help UK researchers generate reliable, reusable datasets suited for future national-infrastructure planning.





Dr. James Mckenna

Research Associate in Hydrodynamic Modelling
at Newcastle University

Dr. James Mckenna is an early career researcher who currently holds the position of Research Associate in Hydrodynamic Modelling at Newcastle University. His research focuses on the development of computational methods for fluid dynamics to enhance infrastructure resilience. Recently, he played a key role in the development of a multi-objective optimisation tool deployed on the DAFNI platform, which enables decision-makers to automate the optimal design and placement of Blue-Green infrastructure in urban environments.

As a DAFNI fellow, James is focused on scaling his DAFNI-hosted multi-objective optimisation tool into a national climate service for urban flood and infrastructure resilience through stakeholder training, co-design feedback, and a practical user manual to enable independent use by local authorities.





Professor Khuong An Nguyen

Associate Professor of Smart Transport
at Royal Holloway University of London

Khuong An Nguyen is Associate Professor of AI for Smart Transport at Royal Holloway University of London. His ultimate goal is to make transport systems more reliable, resilient, and impactful in people's daily lives. Academically, his work has received 2 Best Paper Awards, 1 Best Poster Award, 3 US Patents, and over £1M UKRI funding. Beyond academia, he has been collaborating with government departments and industry

partners to apply his research, including trials with the Cabinet Office, Ministry of Defence, Department for Transport, NHS, Southeastern Railway, and Network Rail. Through this DAFNI Fellowship, he aims to deliver a transport resilience showcase on the DAFNI platform; and attract new interdisciplinary transport partners and stakeholders.





Dr. Mingshu Wang

Reader in Geospatial Data Science
at Glasgow University

Dr Mingshu Wang is a Reader in Geospatial Data Science at the University of Glasgow. His research sits at the intersection of GeoAI, spatial data science, and infrastructure systems, with a focus on how transport, urban, and environmental networks respond to disruption and shape socio-economic outcomes. He works on developing scalable and interpretable machine learning approaches tailored to geospatial data.

As a DAFNI Fellow, Mingshu will develop GeoAI-enabled workflows for scenario-based analysis

of UK infrastructure systems. He will contribute analysis-ready datasets and reproducible, containerised models to the DAFNI platform, supporting transparent and reusable infrastructure analytics. His fellowship will focus on connecting advanced data science with real-world decision-making, working with partners across academia, government, and industry. Through workshops, open tools, and community engagement, he aims to strengthen DAFNI as a platform for collaborative, evidence-based infrastructure resilience research.



The background of the slide features a dark blue color with a light blue geometric pattern. This pattern consists of interconnected lines forming a network of triangles and polygons, with several circular nodes at the vertices of these shapes. The overall effect is a modern, tech-oriented aesthetic.

Workshops

Clean Energy Workshop

DAFNI Conference 2026

Join us on 10th September for our afternoon workshop on the Government's Industrial Strategy, specifically the Clean Energy Mission.

EPSRC Energy Networks Hub is leading the workshop for academia.

The Supergen Energy Networks Hub (SEN) is a £9m research project funded by the Engineering and Physical Sciences Research Council (EPSRC). The hub brings together collaborative teams from Industry, Academia, Government and Civil Society to carry out highly impactful, interdisciplinary research, to enable energy networks to become a driving force towards a rapid, safe and just transition to net zero.

We are keen to hear community views!





Dr Robin Preece

Professor of Future Power Systems,
The University of Manchester

Clean energy depends on smart, resilient and well-connected energy networks. This workshop, led by the Supergen Energy Networks Hub, will explore how energy networks researchers are already delivering real-world impact across the clean energy transition by working with industrial partners, where key challenges remain,

and how DAFNI's wider research community can contribute. Through industry insights and cross-disciplinary discussions, we aim to identify practical examples of impact, uncover new collaboration opportunities, and generate ideas that can accelerate progress towards a clean, secure, and resilient energy system.



The background of the slide features a dark blue color with a light blue geometric pattern. This pattern consists of several circular nodes of varying sizes connected by thin, intersecting lines, creating a network-like structure that spans the entire page.

User Case Studies

D-RES (Distributed Resilience from EVs during Extreme Weather Events)

The D-RES project moved weather-informed adaptive strategies for energy management forward, focusing on electric vehicles and storms. Existing electrical infrastructure is at risk from the growing EV numbers, as well as from the increasing frequency of extreme weather events. D-RES demonstrates how EVs could also be used as mobile back-up batteries in an extreme weather event, to keep the heating and lights on, providing distributed grid resilience.

BRINES (Building Risk-Informed redundancy for Net-zero Energy Systems)

New weather extremes and energy demand. BRINES (Building Risk-Informed redundancy for Net-zero Energy Systems), seeks to answer the challenging question of whether our present and future energy systems are prepared for more extreme weather driven by climate change, coupled with changing electricity generation methods. It models how to ensure resilience in the energy system during these weather-driven periods of stress on the networks now, as we head towards Net Zero in 2030, and as far ahead as 2080.

FORNET (FORecasting Services for Energy NETworks)

Forecasting energy data usage at household level, taking into account data and behaviour of individuals, in ForNet (FORecasting Services for Energy NETworks). Forecasting services for the DAFNI platform combines quantitative time series methods, judgemental/behavioural methods/adjustments and treatment for extreme events and deals with the demand end, the supply end, and in between (forecast reconciliation). These forecasts will then be fed into decision support systems – like network optimisation (in a follow up project) . Datasets collected through the project are also available for future research.



Introduction to DAFNI

DAFNI is a computing platform which aims to support advanced research into national infrastructure, including transport, water, and energy and city scale modelling. The DAFNI platform supports research that aims to provide the UK with a world-leading infrastructure system that is more integrated, efficient, powerful, reliable, resilient and affordable. It is enabling the community to conduct research that is able to generate new insights at a higher level of detail and accuracy than ever before.

DAFNI was originally funded by an £8 million EPSRC investment in the UK Collaboratorium for Research in Infrastructure and Cities (UKCRIC) and a £1.2m grant under EPSRC's Resource Only Strategic Equipment. Its aim has been to become the national platform to satisfy the computational needs in support of data analysis, infrastructure modelling and visualisation, and encourage whole-system thinking for the UK's infrastructure research needs.

In March 2023 UKRI awarded £4m to STFC Scientific Computing to establish a national Centre of Excellence for Resilient Infrastructure Analysis, and move the Data & Analytics Facility for National Infrastructure (DAFNI) into its new phase.



If you would like to get involved in DAFNI, please contact
Katie Cartmell, Delivery Manager: katie.cartmell@stfc.ac.uk

Contact us on: info@dafni.ac.uk

Keep up to date with latest news and sign up for our DAFNI Mailing list at:
www.dafni.ac.uk