DCE Community Update September 2023

DCE Programme <dceprogramme@turing.ac.uk>
Fri 29/09/2023 5:33 PM
To:Alice Budden <abudden@turing.ac.uk>

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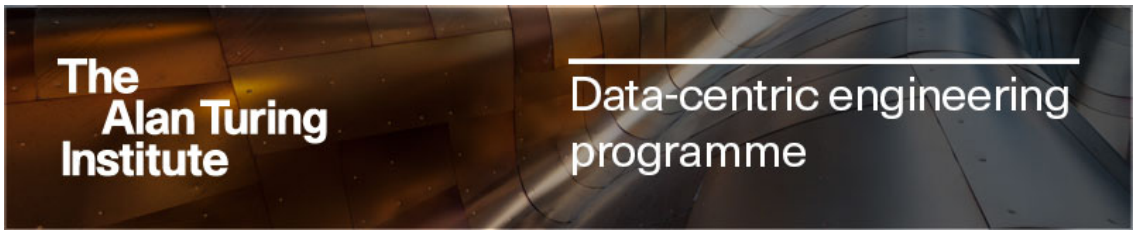


If you're a Turing Slack user follow #data-centric-eng for information and reminders about DCE activity between these monthly updates. To submit any items in future updates please contact Alice Budden.

News

DCE 2.0 Launch

Phase 2 of the Data-Centric Engineering Programme (DCE 2.0) and the continuation of the long-term partnership between The Alan Turing Institute and the Lloyd's Register Foundation was officially launched in July. The second phase of the programme will build on the strong foundations of the strategic partnership with a focus on translating this research into real world impact - follow the link to the launch video to find out how!



The event was held on HMS Belfast and saw an array of attendees and speakers from across industry and academia come together to celebrate and discuss the exciting future of the programme. The event included keynote talks from Mark Girolami - Chief Scientist of The Alan Turing Institute, Ruth Boumphrey - Chief Executive Officer of Lloyds Register Foundation, and Adam Sobey - Programme Director of DCE at The Alan Turing Institute. In addition to two exciting panel discussions delving into two key focus points of DCE 2.0 - Skills and Innovation.

The recording of the full event is now live on YouTube so be sure to head over to hear what the future holds for the Data-Centric Engineering programme.

Follow the links for the full recording of the launch event and the news article on the announcement of the continuation of the strategic partnership.



AI & Maritime Events Roundup

Last week saw a busy week of events around using AI in the Maritime industry with a particular focus on decarbonisation.

Adam Sobey Invited to No10

Roundtable - Increase in the use of AI in Maritime

Adam Sobey, Programme Director for the Data-Centric Engineering programme, attended a roundtable at No10 Downing Street, alongside Ministers and experts in the field, to discuss increasing the use of AI in Maritime.

London International Shipping Week

AI for Maritime Businesses Breakfast Briefing

The Alan Turing Institute sponsored this years London International Shipping Week, one of the largest shipping events across the globe. During the week, the DCE programme hosted a Breakfast Briefing to discuss what is AI, and why is it important for businesses within the Maritime Industry. This event drew in lots of interest from across industry, and kick started exciting conversations with some new connections!

CogX Festival

Decarbonising the Maritime Industry using AI

The Alan Turing Institute partnered with CogX for this years festival, and DCE were invited to host the Executive Suite during the Global Leadership Summit. The Suite was based on 'Decarbonising Maritime using AI' and saw a select group of senior attendees from across Maritime industries to discuss the current state of AI within the sector, before having the opportunity to watch Doug Gurr talk on the main stage.

Rebecca Ward Wins Award for PhD in Data-Centric Engineering!

Rebecca Ward, Turing Research Fellow in the Data-Centric Engineering Programme at The Alan Turing Institute has been awarded the 2023 Godfried Augenboe award for her PhD entitled - 'A data-centric stochastic model for simulation of occupant-related energy demand in buildings.'

A massive congratulations to Rebecca for this huge achievement! To see the original post and to show Rebecca your support, follow the link to the announcement on LinkedIn .

Using Machine Learning to Design more Efficient Offshore Wind Farms

Renewable energy sources are vital to meeting the world's energy needs whilst mitigating climate change. However, building wind farms is an expensive undertaking and any proposed future wind farms must be designed in a way to maximise energy production while minimising construction cost.

The DCE research project Fundamentals of Statistical Machine Learning has collaborated with the University of Oxford, University College London, and the Met Office to build a machine learning model to enable the design of more efficient offshore wind farms. These researchers have developed a multi-fidelity machine learning model with vastly improved accuracy levels when predicting the effects of different turbine layouts in comparison to other methods. This approach could be used to design more efficient wind farms and substantially reduce the cost of wind energy in the UK.

Follow the links to read the full open access article and the Turing Blog post on this work.

Events

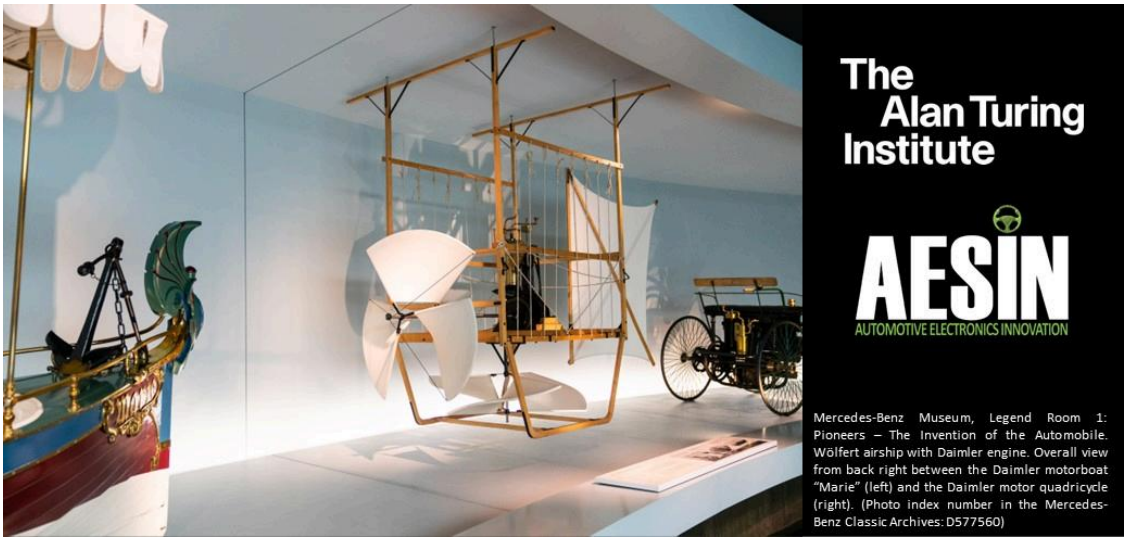
Cyber-SHIP Lab Annual Symposium

University of Plymouth

1-2 November, International Maritime Organization, London
3 November, Cyber-SHIP Lab, University of Plymouth

The third Cyber-SHIP Lab Annual Symposium will build on the success of the previous symposia that attracted hundreds of delegates and brought together the world's leading maritime cyber security experts and innovators. The event will take place at the United Nations International Maritime Organization Head Quarters in London on days 1 and 2, followed by an option to visit the Cyber-SHIP Lab at the University of Plymouth on day 3.

If this sounds of interest to you, follow the links for more information on the event website and how to register.

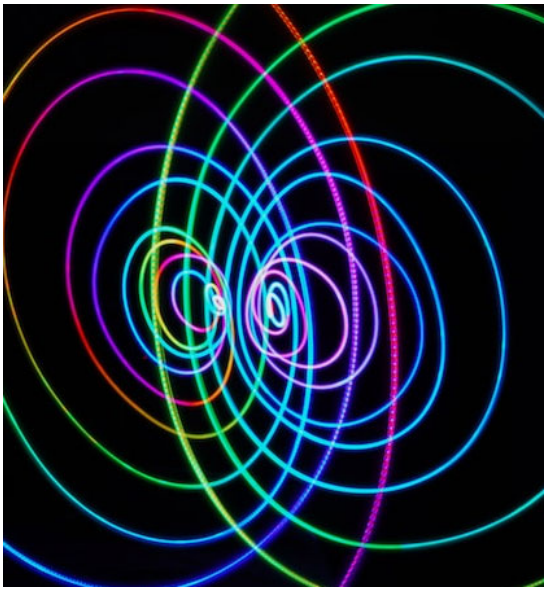


Future of Automotive Electronics and Software: Towards a Research Roadmap

Wednesday 29 November, The Alan Turing Institute

The Alan Turing Institute's DCE programme has partnered with AESIN's Research and Innovation SIG to bring together representatives from across academia and industry for a workshop to better understand how emerging fields of science and technology stand to play a critical role in the future of automotive electronics and software.

For more information on topics of discussion, speakers, and how to register, follow the link here.



TMCF Workshop: Physics-Informed Machine Learning

Monday 9 October 2023, Online

The workshop will showcase new methodologies developed during the Turing Theory and Methods Challenge Fortnight event that took place in January 2023, exploring Statistical Mechanics (SM) and its applications to Artificial Neural Networks (ANN) and Explainable Artificial Intelligence (AXI).

For more information, the full agenda, and how to register, follow the link here.

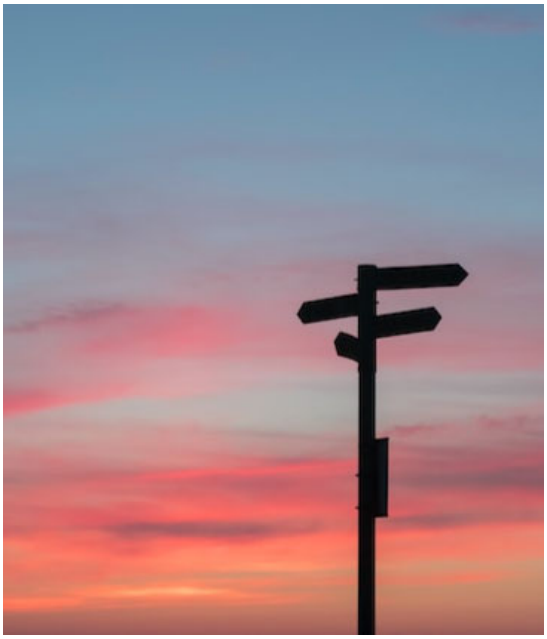
Policy Priorities & AI for SDGs

Monday 29 January 2023 - Friday 2 February 2024

This event will gather up to 12 teams from around the world to engage in a challenge using open spending data, development indicators, and the recently released web-based modelling app from the Policy Priority Inference research programme. The organisers would like to invite anyone interested in the intersection of sustainable development, artificial intelligence, open government, and computational social science to attend this one-of-a-kind event.

Registration deadline 30 November 2023.

Follow the links for more information, and to register your interest.



Physics-informed Machine Learning (Φ-ML) Meets Engineering Seminar Series: upcoming dates (online)

12 October, 13:00-14:00 - Morten Mattrup Smedskjaer, Cracking the Code: Using Data Analysis to Engineer Stronger and Tougher Glasses

26 October, 13:00-14:00 - Dr Christopher Vincent Rackauckas, Generalizing Scientific Machine Learning and Differentiable Simulation Beyond Continuous Models

How to join, talk abstracts and future details on future seminars.

Publications

Publication Highlight

System Effects in Identifying Risk-Optimal Data Requirements for Digital Twins of Structures - *September 2023, arXiv preprint*

Domenic Di Francesco, Max Langtry, Andrew B. Duncan, Chris Dent.

Structural Health Monitorinng (SHM) technologies offer much promise to the risk management of the built environment, and they are therefore an active area of research. However, information regarding material properties, such as toughness and strength is instead measured in destructive lab tests. Similarly, the presence of geometrical anomalies is more commonly detected and sized by inspection. Therefore, a risk-optimal combination should be sought, acknowledging that different scenarios will be associated with different data requirements. Value of Information (VoI) analysis is an established statistical framework for quantifying the expected benefit of a prospective data collection activity. In this paper, the expected value of various combinations of inspection, SHM and testing are quantified in the context of supporting risk management of a location of stress concentration in a railway bridge. The system level resuts differ from a simple linear sum of marginal VoI estimates and therefore show that system-level decision making requires system-level models.

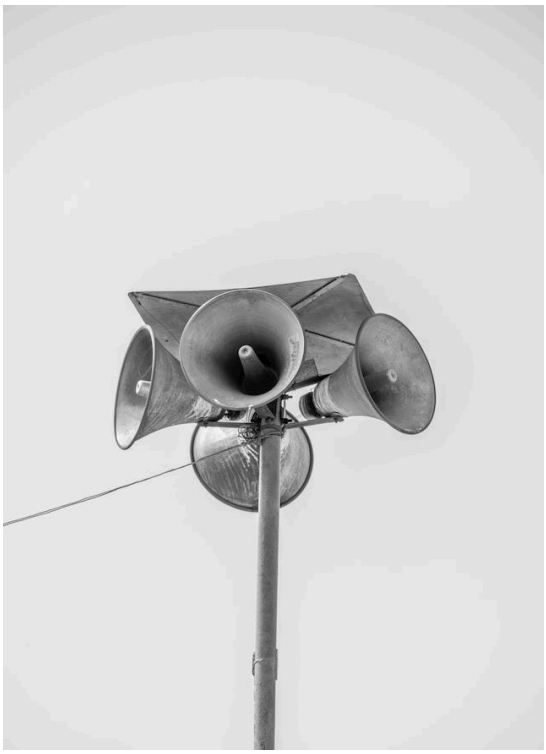
To read the full article follow the link here.

DATA-CENTRIC ENGINEERING

Data-Centric Engineering Journal

Call for Papers!

Reliability, Monitoring, and Sensing Technology for Wind Energy. *Deadline 14 April 2023.*



Authors are invited to contribute to this special collection based on wind energy. Amongst renewable energy sources in the global energy pool, wind energy holds the lead. With a number of wind turbines reaching the end of their design span, the research and industrial communities need to turn to new methods and tools for reliable life-cycle assessment. Structural Health Monitoring (SHM) applications, especially on the wind farm level, are welcomed to contribute to this collection.

Follow the links for more information on topics of interest and other open calls for papers.

Jobs

DCE jobs at the Turing

Research Associate, Development of an AI Data Engineer

The Data-Centric Engineering (DCE) programme are recruiting for several Research Associates to join the DCE research team. This role will contribute to the development of AI for the automation of data pipelines. The idea is that developing data models for an individual product is increasingly possible for companies. These research associates will focus on specific research areas in order to automate the process.

Application deadline Sunday 8 October

Full Details

DCE jobs elsewhere

Please e-mail Alice Budden with any external opportunities you wish to be circulated in future DCE Newsletters.

Notifications

Communicating about your project

The DCE programme is always looking to communicate the impact of its projects and research activity. If your project is achieving some interesting real-world applications or impact and you are interested in communicating this to a wider audience please contact Alice Budden. The Turing hosts a Blog and a Podcast and publishes regular Impact Stories on activity. The Turing Communications team can also help support you on any related media activity.

Attribution in Publications

A reminder that all publications resulting from work on the programme should acknowledge the Lloyd's Register Foundation and The Alan Turing Institute Data-Centric Engineering Programme or the AI for Science and Government funding as appropriate. More detailed information can be found under 'Acknowledging the Turing in Publications' on the Turing Intranet, or by contacting publications@turing.ac.uk.

Updated Office Access

The Institute's offices are now fully open. The different spaces have been configured to support different types of working:

First floor: This is the collaboration hub of the Turing and is intended for project/team working, training, workshops, group meetings, presentations and visitor hosting.

Second floor: This space supports individual working at standard desking/workstations in a traditional office environment. Additionally, there is a signposted area to the rear of the office for quiet working. Please refer to the floor plan to identify this area.

Fourth floor: We have meeting rooms located on this floor, please refer to the floor plan for further information. Our colleagues at ARIA now exclusively use the office space on this floor.

Further details and office floor plans can be found on Mathison.

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