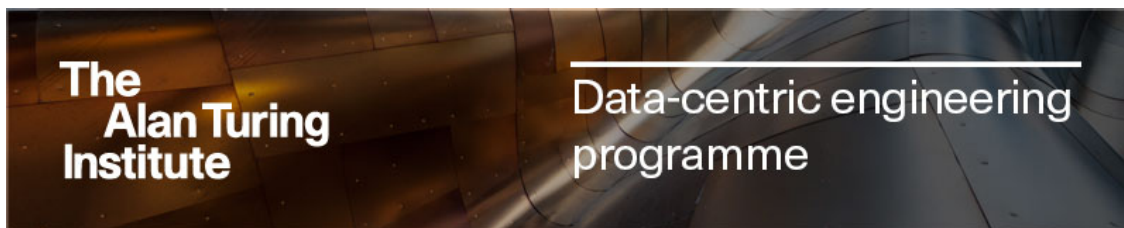## DCE Community Update March 2023

DCE Programme <dceprogramme@turing.ac.uk>

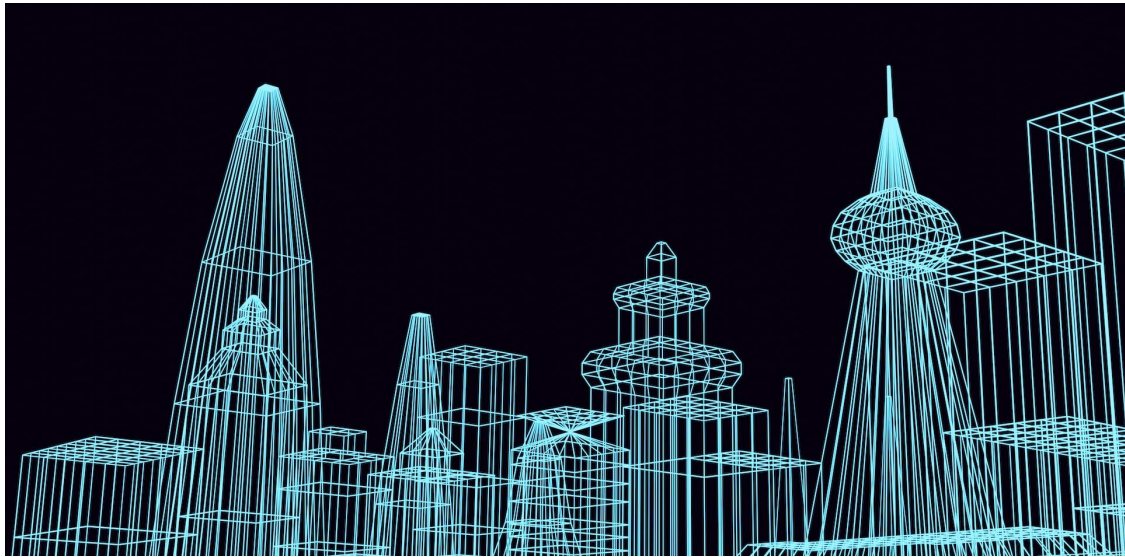Thu 30/03/2023 4:59 PM

To:Katy Henderson <khenderson@turing.ac.uk>

Click here if you are having trouble viewing this message.

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

Turing Launches Pioneering New Digital Twins Initiative

The Alan Turing Institute has launched the Turing Research and Innovation Cluster (TRIC) focusing on digital twins this month at AI UK.

This initiative aims to democratise access to emerging digital twin technology by providing open and reproducible computational and social tools for digital twin development and deployment as a national service. To read more about this initiative follow the link here.

If you still have questions around "What is a digital twin and why we need them?", make sure to check out the blog post for answers to these key questions.

Twinning Ways: How Digital Twins will Change our World for the Better

To hear more about the impact research on Digital Twins at the Turing has had so far, an interesting piece has been posted on the Alan Turing Website describing projects from the AI for Science & Government and Data-Centric Engineering Programmes. Including work on the 3D Printed Steel Bridge digital twin, Urban Underground Farm digital twin, and the verification of the Voyage Data Recorder digital twin 'HermAce' in the Maritime sector.

Tackling Climate Change with Data Science and AI

New white paper published by the Turing

Data Science and AI are two of the most powerful assets in addressing the climate crisis, according to finding's in the new white paper published by the AI for Science and Government Programme. The programme used collaborative and multidisciplinary data scieence and AI to help tackle climate change, including research in collaboration with the Data-Centric Engineering Programme.

The paper addresses the need for urgent solutions to the climate emergency, demonstrating how data science and AI can play a key role to advance our scientific understanding to provide new pathways to adapt and mitigate this planet-threatening problem.

For the news piece with a link to the full paper, follow the link here.

Turing Data Study Group May 2023

Open for Applications Now!

This months Data Study Group will include challenges set by NBN Trust, Peak District National Park Authority, Environmental Investigation Agency, Dstl, and Johnson Matthey.

These Data Study Groups are intensive 'collaborative hackathons' hosted at the Turing, which bring together organisations from industry, government and the third sector, with talented multi-disciplinary researchers from academia. Researchers brainstorm and engineer data science solutions, presenting their work at the end of the week.

For a full list of the challenges set in this months Data Study Group and how to get involved, head over to the link here.

12th International Climate Informatics Conference

It's the last chance to register for the International Climate Informatics Conference at Cambridge University on 19-21 April. This conference aims to bring together researchers and users across different disciplines and sectors to forge international collaboration between climate science, data science, and computer science, amongst much more! Registration closes 3 April so make sure to secure your spot now!

Following on from the conference there will be a virtual **Climate Informatics Reproducibility Challenge** from 1-31 May. In this challenge, teams of 2-4 will collaborate to create a notebook which reproduces key contributions of a published environmental data science paper for eventual integration in the open-source Environmental Data Science (EDS) Book. For more information and how to register, follow the link here.

Publication Hightlight

The Challenges of Using Live-Streamed Data in a Predictive Digital Twin
Journal of Building Performance Simulation, March 2023

Rebecca Ward, Ruchi Choudhary, Melanie Jans Singh, Flora Roumpani, Tomas Lazauskas, May Yong, Nicholas Barlow & Markus Hauru

A key component of a digital twin is the monitored data, communicated from the physical system to the virtual representation, for visualization and simulation. Yet little attention has been paid to the practicalities of working with live-streamed data. This paper describes design of the data communication infrastructure, 3D visualization and data interpretation tools, and model development and implementation, for an operational digital twin.

To read the full open access article follow the link here.

DATA-CENTRIC ENGINEERING

Data-Centric Engineering Journal

Call for Papers!

Data-driven Techniques in Geoscience, Geomechanics, and Geotechnical Engineering. *Submission deadline 30 November 2023.*

This special collection aims to provide a forum on the recent advances of data science and artificial intelligence that could potentially support discovery of new physics, advance the knowledge of geoscience and geoengineering, and provide reliable engineering solution to address broad and unsolved problems in geoscience and geoengineering.

For more information on topics of interest and submission guidelines, please follow the link here.

Publication Highlight

Coevolutionary strategies at the collective level for improved generalism - *February 2023.*

Przemyslaw Andrzej Grudniewski & Adam James Sobey

It is proposed in this paper that the uptake of many genetic algorithms is low as they are evaluated over a narrow range of problems. This means they have similar characteristics that do not properly reflect the complexity of real-world problems. The results show that those that perform across a range of problems are more likely to perform well on real applications. This explains how the leading algorithm presented in this benchmarking, cMLSGA, is now being implemented into a variety of different applications.

To read the full open access article follow the link here.

Events

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

06 April, 13:00-14:00 - Prof Jean-Philippe Noël, title TBA

20 April, 13:00-14:00 - Lorenzo Branca, title TBA

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

Jobs

DCE jobs at the Turing

Research Project Manager for Turing Research Innovation Cluster in Digital Twins

The Turing Research Innovation Cluster in Digital Twins (TRIC:DT) is seeking to appoint a Research Project Manager to support work across the TRIC:DT programme. The successful candidate will play a central role in assisting with the overall facilitation of delivery of projects across the programme, ensuring activity is delivered to requirements, specification, time and budget.

Application deadline 19 Aplril 2023

Full Details

Please check the Turing's recruitment page.for positions available within other programmes and within the business team.

DCE jobs elsewhere

IMSS Research Fellow in Statistical Science

The Department of Statistical Science at UCL is recruiting a Research Fellow to carry out research on a topic of the Fellow's choice in statistics (including data science) or applied probability. If this sounds of interest to you, please feel free to contact Francois-Xavier Briol to find out more.

Application deadline 13 April 2023

Full Details

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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