netherlands eScience center

Annual report 2023

We are the Dutch national centre of expertise for research software

Project highlights

121 projects running in 2023

new projects in 2023 **53**

Where we work

40

blogs written by Netherlands eScience Center colleagues contributed to the 53.000 views from our readership.

The Atlantic Ocean Circulation is sensitive to stressors in freshwater distribution such as the meltwater from ice sheets. The **eTAOC** project is pioneering the development of sophisticated software capable of assessing transition probabilities utilizing advanced rare event algorithms. This groundbreaking software serves as a cornerstone in a broader initiative, forecasting the likelihood of significant disruptions to the Atlantic Ocean Circulation by the year 2100.

The **H-GEAR** project focuses on unraveling the intellectual tapestry of America's 'founding fathers' by using digital methods to chart shifts in the character and structure of political discourse during the American Revolution. The ambition is to understand how political discourse shifted during the Revolutionary era, to reveal which people had influence and power, and to discover where and how these changes spread.

MyDigiTwin is an innovative project within the digital health sphere that aims to leverage digital twin technology to transform healthcare decision-making. It seeks to develop a platform in which individuals can, for the first time, directly compare their personal health information with reference data. The primary objective of MyDigiTwin is to provide individuals with more information about their health using big data and AI, thereby empowering them to make better informed decisions about their lifestyle choices.

In the **Moisture tracking with WAM2layers** project, researchers developed an innovative tool, WAM2layers, capable of tracking atmospheric moisture. By utilizing advanced algorithms and integrating diverse data sources, the tool enables precise backtracking to determine the origin of precipitation and forward tracking to trace the path of evaporated moisture. This groundbreaking approach enhances our understanding of moisture dynamics in the atmosphere, with implications for weather forecasting, climate modelling and environmental research.

54

new entries to the Research Software Directory

Software highlights

GEMDAT, a Python library tailored for the analysis of diffusion in solid-state electrolytes via molecular dynamics simulations, is a valuable resource for researchers in chemistry, biology, physics and material science. Created with precision and efficiency in mind, GEMDAT empowers users in diverse scientific disciplines to delve deeper into their data and uncover critical insights.

Developed as part of the EXCITED project, the **Xarray-regrid** software is a versatile library designed to seamlessly map xarray datasets onto a new grid. Geared towards researchers in geospatial data, including geoscientists, climatologists, ecologists and environmental scientists, this indispensable tool streamlines data manipulation tasks.

DeepRank2 is an open-source deep learning framework for data mining of protein-protein interfaces or single-residue missense variants. This software, intended for structural biologists, biomedical researchers and bioinformaticians, allows for the transformation of molecular data into 3D representations containing structural and physico-chemical information, which can be used for training neural networks.

Trainings & Workshops

The Netherlands eScience Center offers a range of training courses and workshops, open to all researchers affiliated with Dutch research organizations and from industry. Some of our courses include an introduction to Deep Learning, Image Processing with Python and GPU programming.

27
Workshops taught in 2023

380
Workshop participants in 2023

Key collaborations

The Netherlands eScience Center, in collaboration with the Lorentz Center, holds an annual competition to bring together researchers and experts from the academic community and the public-private sector. The 2023 theme was 'Computational Mathematics for Real-World Application'. The winners of the competition were awarded with the opportunity to host a workshop at the Lorentz Center in Leiden and receive research software engineering support from the eScience Center.

The Netherlands eScience Center announced the Amsterdam Declaration on Funding Research Software Sustainability (ADORE). ADORE is the first step towards formalizing, on a global level, the basic principles and recommendations related to funding the sustainability of research software, including the people needed to achieve this goal.

Key document creation

The Netherlands eScience Center released job profiles for Research Software Engineers (RSEs) describing the tasks and skills expected of RSEs who work at the eScience Center. We also published a comprehensive role description of an RSE that we hope will give RSEs inside and outside the Center the recognition they deserve.

Generative AI create opportunities and challenges for the Netherlands eScience Center. Therefore, the eScience Center has published an initial policy on the acceptable and responsible use of Generative AI. We hope this policy inspires other similar organizations to take a closer look at how they use generative AI.

Fellowship Programme

The Fellowship Programme supports individuals who have the ambition to promote or improve the awareness and use of open and sustainable research software within their institute or academic community. In our second cohort, we supported 14 Fellows from 10 institutes across the Netherlands on 12-month projects across a variety of disciplines.

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