TURING Completes Its First Year, Laying the Foundations for Trustworthy AI in Science

The €7.5 million Horizon Europe project reaches a major milestone in developing reliable, physics-aware artificial intelligence for particle physics, nuclear energy and weather forecasting.

Artificial Intelligence can help scientists understand complex phenomena, from extreme weather to nuclear reactor safety. But in applications where decisions have serious consequences, accuracy alone is not enough: AI must also be reliable, respect the laws of physics and provide results that experts can understand and assess.

This is the ambition of TURING – Trustworthy Unified Robust Intelligent Generative Systems, which has completed its first year and achieved a major research milestone. Launched on 1 September 2025, TURING is a 36-month research and innovation project funded by the European Union's Horizon Europe programme under Grant Agreement No. 101215032.

The project is coordinated by the Institute of Communication and Computer Systems (ICCS), Greece, with Konstantinos Tserpes as Project Coordinator. Dusan Jakovetic of the University of Novi Sad, Faculty of Sciences, Serbia, leads scientific and technical coordination.

Making AI More Reliable for Science

Many scientific and industrial processes depend on sophisticated computer simulations to understand how complex physical systems behave. These simulations are often extremely demanding, requiring significant computing power, time and resources. TURING aims to develop a new generation of AI models that can make such analyses faster and more efficient while maintaining scientific reliability.

Unlike conventional AI approaches that rely primarily on patterns in data, TURING seeks to incorporate scientific knowledge and physical principles into the way AI models are developed and used. The project focuses on making AI more robust, explainable and adaptable to different conditions, while providing ways to assess the uncertainty associated with its predictions.

At the heart of TURING is the development of the TURING Framework, which will bring together advanced AI models, tools for their development and adaptation, and a user-friendly interface enabling scientists and engineers to interact with the technology. TURING five use cases cover three domains: nuclear science and engineering, high-energy particle physics and meteorology. The project ultimately aims to make its key models and tools publicly available for wider scientific use.

A Major First-Year Achievement: Completion of MS2

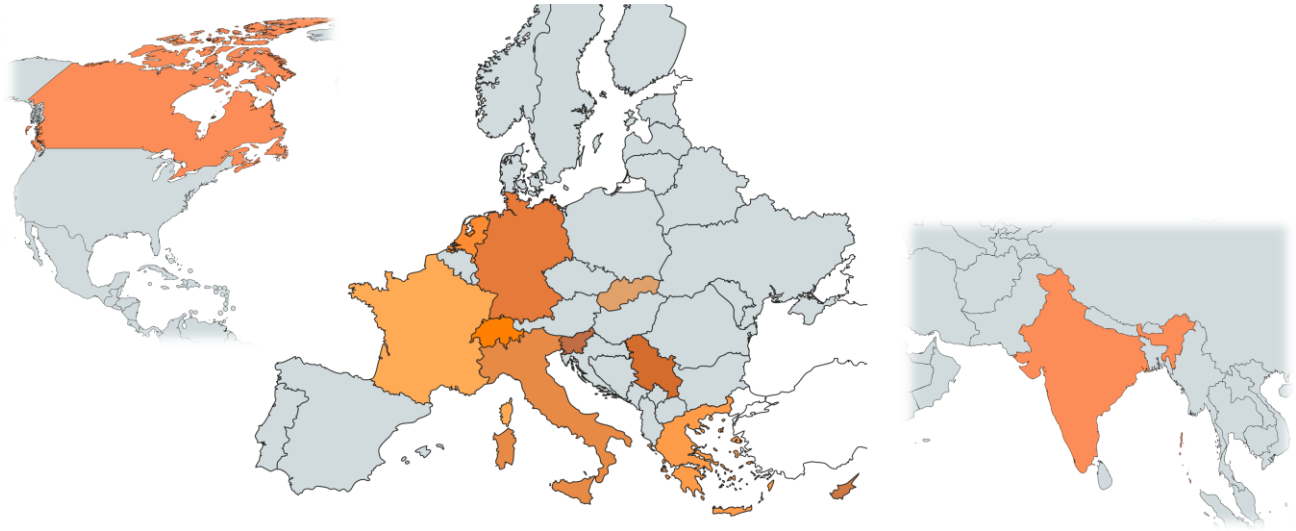
Throughout its first year, the consortium worked to establish the scientific and technical foundations required for the development of the TURING Framework. This included examining existing scientific modelling approaches and their limitations, identifying the needs of the five use cases, defining user and technical requirements, and establishing the initial architecture of the future framework. This provides the foundation for the next phase of model development, integration and evaluation.

Scientific Progress and International Visibility

The project has already recorded four journal publications (one joint) and nine international conference publications (one joint). TURING partners have participated in numerous scientific and networking events and co-organised three workshops or special sessions, including activities at BDVA Data Week 2026, 9WCSCM 2026 and WCCM–ECCOMAS 2026. They also participated in IEEE ICE 2026 and EBDVF 2026. TURING has established six synergies with other Horizon Europe projects, supporting scientific exchange and future collaboration.

A Consortium Across 12 Countries

TURING brings together 23 organisations from research, academia and industry. The partnership combines international expertise in AI and scientific computing with specialist knowledge of the project's application domains.



Countries represented in the TURING consortium

TURING Partners

Greece: Institute of Communication and Computer Systems (ICCS); ZELUS IKE; DIINEKES (DIE); Foundation for Research and Technology – Hellas (FORTH); Ypologistiki Michaniki Epomenis Genias IKE (NCOMP).

Germany: AEGIS IT Research GmbH; NEC Laboratories Europe GmbH; University of Stuttgart (USTUTT).

Italy: Fondazione Bruno Kessler (FBK); Scuola Superiore di Studi Universitari e di Perfezionamento Sant'Anna (SSSA).

Canada: École de technologie supérieure (ÉTS).

India: Indraprastha Institute of Information Technology Delhi (IIIT-Delhi).

Netherlands: NRG PALLAS BV.

France: Bull SAS; Météo-France.

Serbia: University of Novi Sad – Faculty of Sciences (UNSPMF).

Slovenia: Fakulteta za informacijske študije v Novem mestu (FIS); Rudolfovo Znanstveno in Tehnološko Središče Novo mesto (RDL).

Cyprus: IOTAM Internet of Things Applications and Multi Layer Development Ltd (ITML); ML and AI Data Consultants Ltd (MLAI).

Slovakia: Slovenská technická univerzita v Bratislave (STUBA).

Switzerland: European Organization for Nuclear Research (CERN); Eidgenössische Technische Hochschule Zürich (ETH Zürich).

ETH Zürich and IIIT-Delhi participate as associated partners.

Stay Connected with TURING

TURING's first year has also been marked by extensive communication activities aimed at making its research accessible to audiences beyond the scientific community:

Website: https://turing-project.eu/ | LinkedIn • X • Zenodo • YouTube

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