



HARPOCRATES NEWSLETTER

HARPOCRATES ACTIVITIES M1-M6 April 2023.

We are pleased to announce the publication of the first issue of the HarpoCrates Newsletter

Project Information

Project acronym: HARPOCRATES
Project name: Federated Data Sharing and Analysis for Social Utility
Grant Agreement ID: 101069535

Start date: 1. October 2022
End date: 30. September 2025.
Overall budget: 4.2 mil EUR

Coordinator: Tampere University

Call: HORIZON-CL3-2021-CS-01
Topic: HORIZON-CL3-2021-CS-01-04

Type of action: HORIZON Research and Innovation Actions
Granting authority: European Commission-EU

Welcome to the first HarpoCrates newsletter!

We are pleased to announce the publication of the first issue of the HARPOCRATES newsletter.

HARPOCRATES is a 3-year Research and Innovation Action project funded under Horizon Europe Programme. It kicked off in October 2022 and it gathers a consortium of 13 partners from 9 different countries including universities, research institutions, university hospitals, SMEs and regional government administration bodies.

The combination of big data and advancements in AI provide significant opportunities for both private and public organizations, but sharing data across organizations and borders in compliance with GDPR is becoming increasingly challenging as the collection of detailed personal data is paired with improved abilities to link data sets.



HARPOCRATES uses innovative cryptographic methods to improve privacy-preserving machine learning and federated learning, enabling decentralized training, validation, and prediction on encrypted data. These privacy-preserving services and secure computation allow users to take advantage of cloud-based AI while still maintaining control over their data.

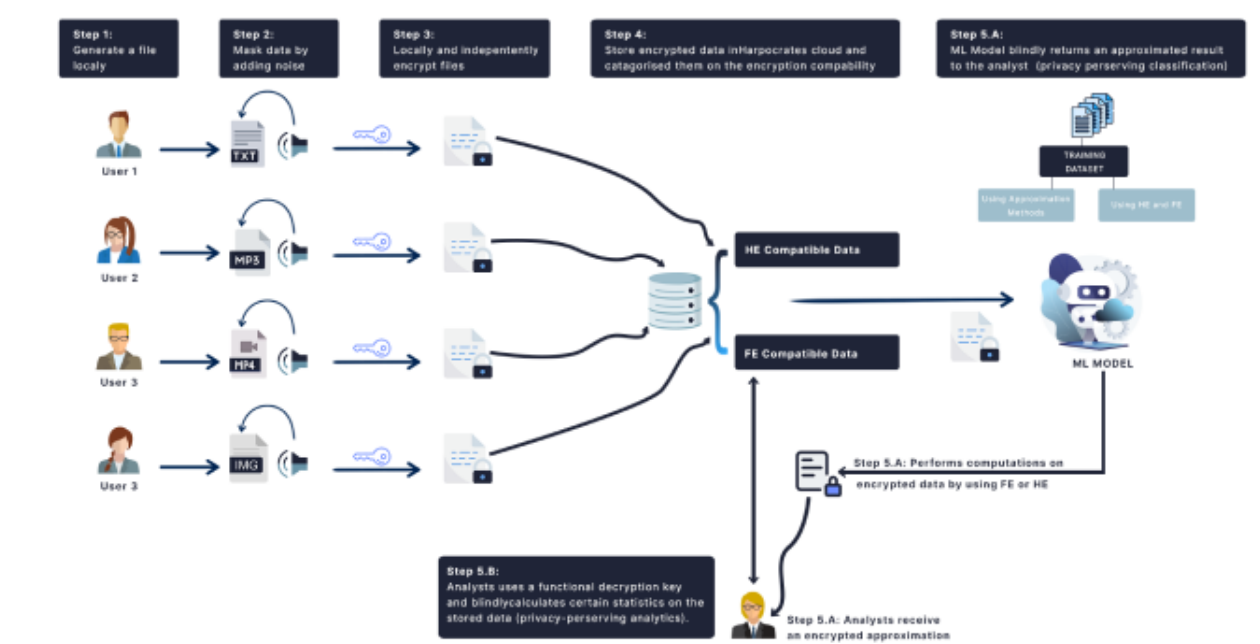
HARPOCRATES will help create fairer, more democratic, and less biased societies by enabling systems that can evaluate data without access to sensitive information.

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Introduction

In this digital era, where the number of people using various digital services and tools are higher than ever before, opportunities abound to collect large amounts of data for statistical purposes and identifying behavioral patterns. This data can be used for further analysis and decision-making by stakeholders from different sectors including retail, transportation, healthcare, insurance, media and entertainment or public sectors such as medical research, statistics on demographics, etc.

Use of available large volumes of user data is very limited due to privacy concerns, which is the reason why the data are kept isolated in islands of the system, not available for secondary use and processing. Furthermore, practice showed that in many scenarios data are unrightfully accessed and shared with third-parties, and even, when the consent for the data processing exists, the learning models incorporate proxies that are inexact, biased and often unfair.



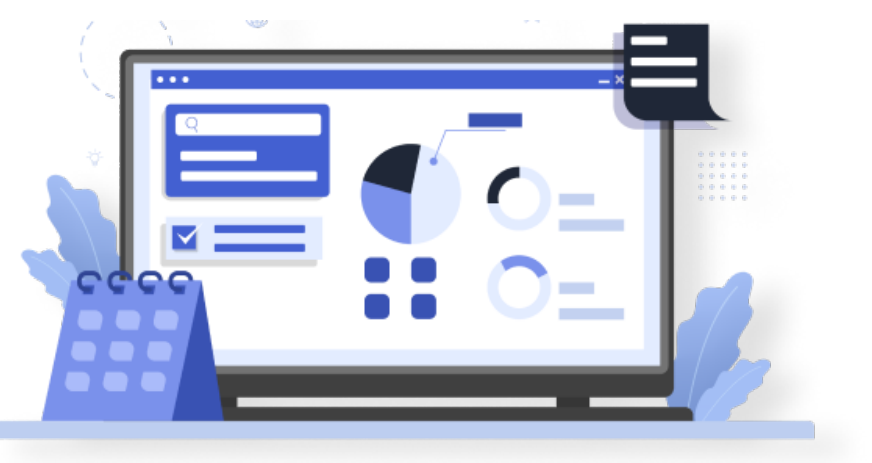
Why HarpoCrates?

Project HARPOCRATES, focuses on setting the foundations of digitally blind evaluation systems that will, by design, eliminate proxies such as geography, gender, race, and others and eventually have a tangible impact on building fairer, democratic and unbiased societies. To do so, we plan to design several practical cryptographic schemes (Functional Encryption and Hybrid Homomorphic Encryption) for analysing data in a privacy-preserving way. Besides processing statistical data in a privacy-preserving way, we also aim to enable a richer, more balanced and comprehensive approach where data analytics and cryptography go hand in hand with a shift towards increased privacy.

Use Cases

The HARPOCRATES project is committing to practical applicability and has a total of two use cases, one of which is the fight against cybercrime. One use case involves improving threat intelligence sharing between local authorities using advanced data sharing mechanisms. The project includes building a dataset, designing and implementing a threat intelligence platform, training machine learning models on anonymized data, and evaluating the effectiveness of the system. Read on to learn more about this innovative approach to combating cyber threats.

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Second use case of the HARPOCRATES project involves the collaborative use of machine learning in sleep medicine research. Three sleep medicine centers from different countries will participate in this demonstrator, which aims to use advanced encryption techniques to securely share and analyze sleep recordings, patient records, and questionnaires. By addressing data privacy and security concerns, this innovative approach will allow complex analytics and machine learning techniques to be used without compromising patient privacy. The solution will be user-friendly and usable in clinical settings, demonstrating the potential for machine learning to improve sleep medicine research.

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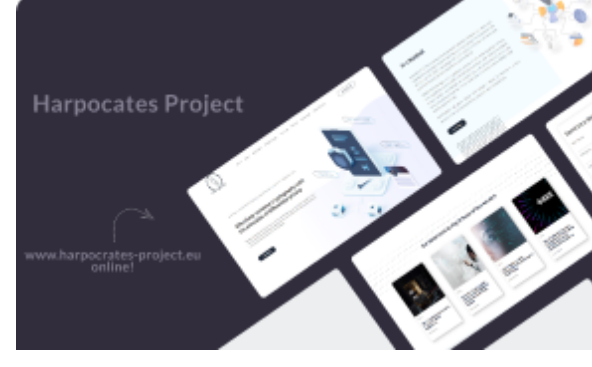
Links not to miss



Kick-off Meeting

The HARPOCRATES consortium held their kick-off meeting in Berlin on November 1st and 2nd. The meeting was hosted by Charité University Hospital and partners had a chance to meet in person and discuss work packages, main objectives, and action points for a three-year long project. The meeting also included discussions on potential risks and mitigation strategies for the project.

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HarpoCrates website is online!

Explore www.harpoCrates-project.eu for the latest news and updates on the innovative HARPOCRATES project, which has been active since January 15th. The website offers extensive information on the project's objectives, expected outcomes, and partners. Visitors can access deliverables, explore work packages, and engage with the project team through the website.

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HARPOCRATES Interview

Thomas Penzel, the scientific chair of the sleep medicine center at Charité University Hospital and the president of the German Sleep Society, shared his thoughts on how the advanced cyber security solutions developed in HARPOCRATES project will have the potential benefits for future collaboration of multiple sleep medicine centers, ensuring that data from many different sources are collected and exchanged for a patient oriented diagnosis and tailored therapy.

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HarpoCrates Blog

Privacy-preserving applications have become an important topic nowadays due to people's increasingly concerns about the privacy of their data, the prevalence of machine learning applications that require access to a vast amount of data, and new regulations such as the General Data Protection Regulation (GDPR), not to mention other ethical and financial concerns. Today, we will learn about a novel privacy-enhancing technique called Hybrid Homomorphic Encryption (HHE), which is an expansion of Homomorphic Encryption (HE).

Written by: Khoa Nguyen, Tampere University

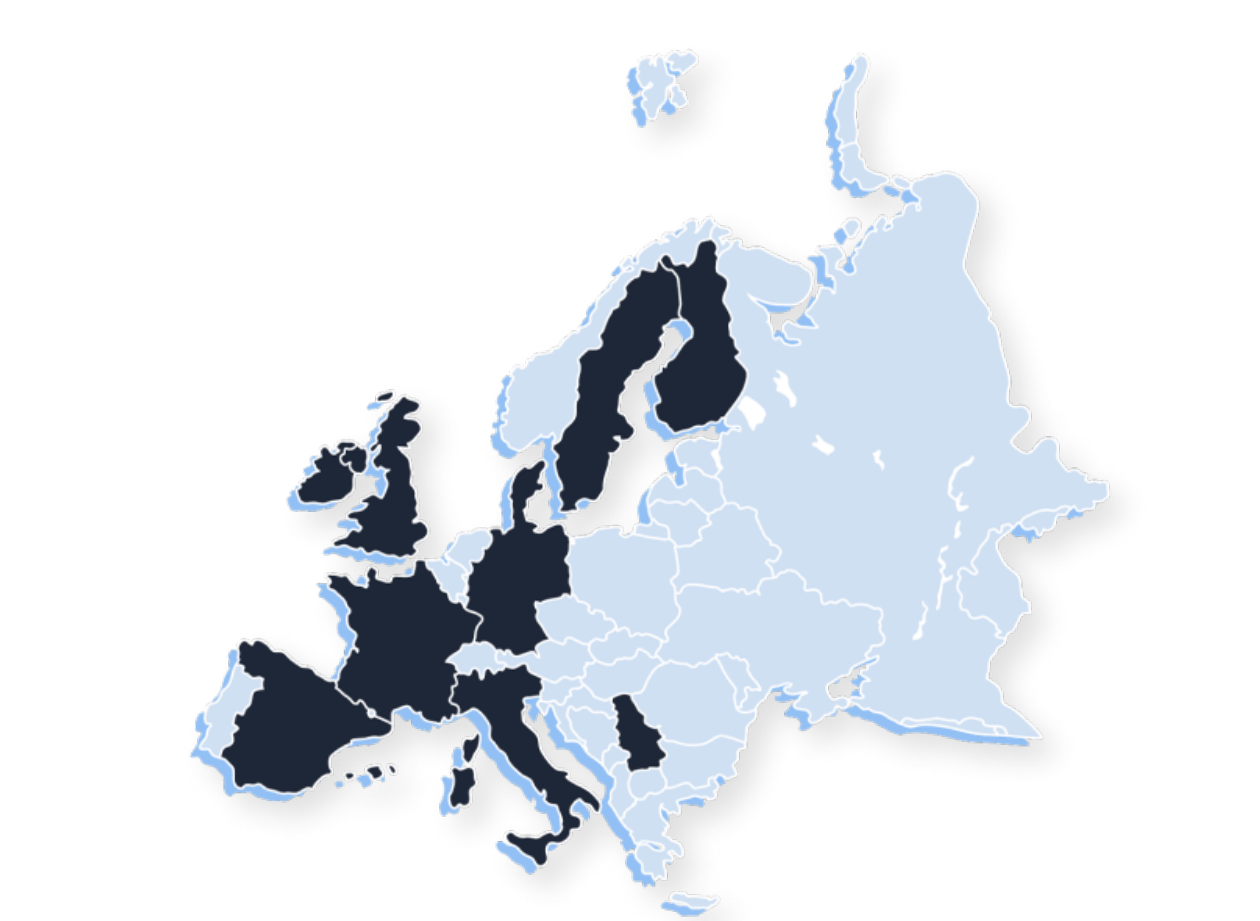
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HarpoCrates Consortium

The HarpoCrates consortium is made up of 13 partners from 9 countries, including prestigious universities, research institutes, SMEs, and government bodies. The consortium will be coordinated by the Tampere University. It is expected that HarpoCrates outcomes will include the development of open source algorithms and toolkits for secure data exchange in the government and healthcare sectors.

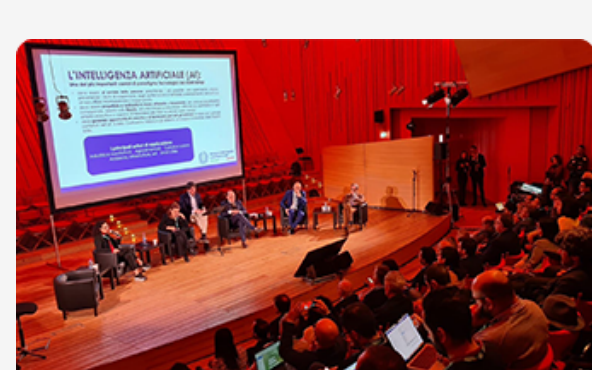
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PUBLICATIONS

The HARPOCRATES project partners have published four scientific papers exploring the latest developments in cryptography and confidential computing. These papers cover a range of topics, including Symmetrical Disguise, Cryptographic Role-Based Access Control, Quantum Functioning, and Confidential Quartet. Read more about these exciting areas of research and stay up-to-date on the latest trends in the field. Discover the cutting-edge work being done in the HARPOCRATES project.

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INVITALIA INNOVATION ROADSHOW L'AQUILA 2023

Stefano Cucchiella from CanaryBit presented the HARPOCRATES project at the Invitalia Innovation Roadshow in L'Aquila, Italy. The project is focused on cutting-edge concepts in cybersecurity and data processing and was well-received by experts in the field. Attendees at the event included experts in electronics, telecommunications, computer science, and cybersecurity, as well as representatives from EU initiatives and associations, the Italian Ministry of the Economic Development, local municipality, and local university.

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Stay Tuned!

Stay updated on all our latest news, developments, research and general information regarding the HARPOCRATES project.



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