



# EXA4MIND

## Welcome to the EXA4MIND Newsletter

Who are we? We are a Horizon Europe project that aims to build an extreme data platform that brings together large scale data storage systems and powerful computing infrastructures by implementing novel automated data management and effective data staging.

### EXA4MIND hosts its third plenary meeting in Garching, Munich

#### PLENARY MEETING

 APRIL  
23-25

 MUNICH



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From 23 to 25 April, the **EXA4MIND consortium met in Garching**, Munich, at the **Leibniz Supercomputing Centre** (LRZ) premises, to host its third plenary meeting. This was the first face-to-face consortium meeting of 2024, which allowed partners to review crucial topics for the development of the EXA4MIND project, such as the next deliverables and the preparation for the project review meeting that will take place in the coming months.

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## Scientific contributions



### A new method to improve the safety and reliability of autonomous driving thanks to the EXA4MIND project

Antonín Vobecký and Josef Šivic from [CIIRC CTU](#), in collaboration with [Valeo.ai](#), presented their research at [NeurIPS 2023](#), introducing a **method that processes 360° camera images from autonomous vehicles to create a 3D semantic map of the environment**. This map allows users to make natural language queries about the location of objects in digital space, enabling semantic segmentation of occupancy and 3D text-based search.

The aim of the research is to identify safety-critical situations by retrieving them from large amounts of data using natural language instructions. This approach not only identifies crucial situations, but also provides additional training data to improve existing machine learning models and algorithms for autonomous driving, thus improving the safety and reliability of autonomous vehicles. **This**

research is part of the **EXA4MIND project**, which collaborates with Valeo.ai to develop large-scale driving data management and analysis tools for safer autonomous car systems.

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## Participation in international events



### EXA4MIND project promoted at HiPEAC 2024

The [HiPEAC conference](#), held in Munich on 17-19 January 2024, was a major gathering of experts in computer architecture, programming models, compilers and operating systems for general purpose, embedded and cyber-physical systems. One of the highlights was the 2nd workshop on Cross-Synergy Projects in Advancing Exascale Platforms and Quantum Computing ([CONCERTO](#)), aimed at fostering collaboration between academic researchers and industrial companies involved in various European projects.

The workshop, attended by **senior researcher Martin Golasowski** from [IT4Innovations National Supercomputing Center](#), highlighted the importance of collaborative efforts in the development of next-generation exascale platforms. Golasowski presented the **LEXIS Platform** and its role in projects such as

**EXA4MIND**, emphasising the incorporation of cutting-edge hardware solutions and software frameworks for advanced systems.

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## **e-INFRA CZ conference 2024: Fostering collaboration and innovation in Czech Research infrastructure**

The [e-INFRA CZ Conference 2024](#), held in Prague at the end of April, served as a **pivotal platform for enhancing the Czech Republic's research infrastructure**, bringing together researchers, academics, and experts. A highlight of the event was the talk of Martin Golasowski ([IT4Innovations National supercomputing Center](#)) on "[HPC-as-a-Service and distributed data management](#)," where he showcased the achievements of the [LEXIS Platform](#) in leveraging advanced computing and data management technologies for computational and data-driven research across Europe. He also outlined the objectives of the EXA4MIND project.

The conference not only facilitated knowledge sharing and best practices but also **reinforced the community's commitment to a future where digital and computational resources are more interconnected and universally accessible**.

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# Campaign: Faces of EXA4MIND

With the **series 'Faces of EXA4MIND'** we want to introduce the people who work every day to achieve our ambitious goal: Building a platform for Extreme Data that enables advanced data analytics on supercomputers and automated data management with support for integration by design with EOSC and European data spaces.

After introducing the project coordinator and the scientific coordinator, **we continue the campaign with four other members of the consortium.**



## Antonín Vobecký (CTU)

We present **Antonín Vobecký, PhD student at the Czech Technical University in Prague (CTU), and machine learning researcher of EXAMIND.** *"This project will really push the boundaries of how machines can automatically learn from large scale data in autonomous driving"* he explains when asked what makes this project special.

Watch His  
Interview



## Pinar Karagoz (METU)

We present **Pinar Karagoz from the Middle East Technical University (METU), and data mining researcher of EXA4MIND.** *"I really do hope and believe that EXA4MIND will provide a platform, which will accelerate the development of AI solutions on HPC involving extreme data"*, she explains when asked what makes this project special.

Watch Her  
Interview



## Mohamad Hayek (BADW-LRZ)

We present **Mohamad Hayek** from the **Leibniz Supercomputing Centre (LRZ)** and data management researcher of **EXA4MIND**. *"The advancement of application cases that use databases led to the need of advanced storage and computing resources mostly available at supercomputing centres. At the same time, supercomputing centres lack a concrete solution for the use of database management systems. What makes EXA4MIND special and what will generate a positive impact, is our attempt to fill that gap by providing a database management solution",* he explains when asked what makes this project special.

Watch His  
Interview



## Arantxa Echarte (AUSTRALO)

We present **Arantxa Echarte** from **AUSTRALO** and the outreach, exploitation & collaboration leader of **EXA4MIND**. *"EXA4MIND aims to democratise access to Extreme Data for SMEs and industrial ecosystem. The project will be a stepping stone in the path to next-generation data processing, paving the way to a new reality where handling ever growing amounts of data is possible",* she explains when asked what makes this project special.

Watch Her  
Interview

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# Upcoming events



## EXA4MIND will present its activities at Europe's biggest supercomputing conference

We are excited to invite you to [ISC High Performance 2024](#), the foremost event dedicated to high-performance computing, machine learning, and data analytics. It will take place in Hamburg from 12 to 16 May 2024, and **the EXA4MIND project will be there represented by its coordinator.**

[IT4Innovations National Supercomputing Center](#) will be one of the exhibitors and present its activities and projects it is involved in. Take this opportunity to network with the partners of the EXA4MIND project, who will be present at booth J22.

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