Digital Mindset in AI4EO Perspective

Nowadays, the rapid advancement of technology has transformed nearly every aspect of our lives. From the way we communicate and work to how we access information and entertain ourselves, digitalization has become an integral part of modern society. To open up new opportunities, new technologies and innovations we need to have a "Digital Mindset" which is a set of attitudes and behaviors that help people and organizations see how data, algorithms, and AI open up new opportunities, and to chart a path to success in a business using artificial intelligence and data.

AI is becoming increasingly important to society and it is in everyone's daily lives such as healthcare, education, business, environment or agriculture. AI has the ability to process vast amounts of data, analyze patterns, and make predictions or decisions with a high degree of accuracy. The power of AI is to transform the way humans do things and change the way we live.

In recent years, humans have applied a digital mindset to the field of Earth observation since there are massive data of satellites and GIS that allow us to leverage them. Therefore, a digital mindset has an impact on scientists, researchers, and policymakers to harness this wealth of data and extract meaningful insights to inform decision-making processes. The effective analysis of vast amounts of digital data integrating AI/ML enables us to understand more about phenomena on Earth and environmental management strategies.

Digital data processing: Digital technologies have provided Earth observation with more accurate, frequent, and real-time monitoring capabilities through digital data processing. Digital data processing has transformed data (facts, figures, data packages) to information by analysis and interpretation and then this information will be transferred into knowledge which is linked with context and experiences. With this idea, AI can be implemented in remote sensing models in several ways to enhance their performance and extract meaningful information from remote sensing data, such as Object Detection and Recognition that deep learning method involves training models on annotated data using algorithms like CNNs.

Moreover, the development of digital platforms has played an important role to facilitate collaboration and knowledge sharing in Earth observation such as a cloud-based computational platform that enables researchers from different regions able to

access and use satellite image datasets for their own educational purposes. This technology approach fosters scientific discovery for solving environmental problems.

Therefore, learning new earth observation technologies that have evolved over time is essential for creating new opportunities and career chances.
For example, an opportunity to predict incoming disasters, manage big earth data, observe change detections in the Earth's systems from multitemporal data, automate huge workflows also analyze and mitigate environmental problems by using AI in EO field.

While the benefits of AI are various, it's important to consider privacy and security, job displacement, and bias in algorithmic decision-making. Using AI technology requires careful regulation, transparency, and responsible implementation of AI technologies. Moreover, accessing these technologies requires resources, financial support including high-quality datasets and computational power and it is not everyone or everywhere can be able to access these resources, leading to unequal access to technology. Society must actively engage in ongoing discussions, involving policymakers, researchers, and the public, to ensure that AI is developed and deployed ethically, serving human needs while mitigating its potential drawbacks.

Figure1. Digital mindset discussion

Figure2. AI system's assessment of objects shown on the built-in camera.
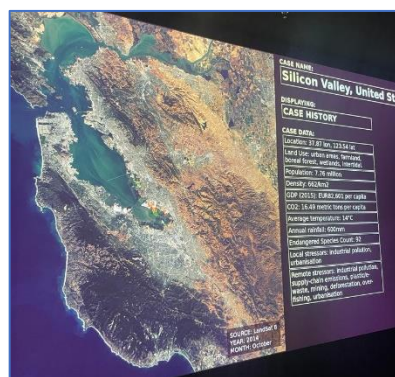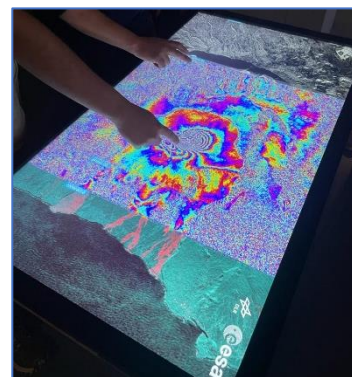

Figure3. Agriculture lab.

Figure4. Satellite image

Figure5. ESA Map Surface Changes From Earthquake