

VERSES

Imagine a Smarter World.™

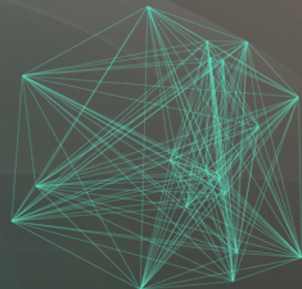


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A I O T I

SIGNATURE EVENT

2023



THE NEXT FRONTIER FOR IOT, EDGE, WEB 3.0

1. **About us**

2. The Next (Spatial) Web

3. The next standards frontier – *Socio-technical Standards*

4. The next frontier of *Genuine Intelligence*

5. The next frontier for AI Governance

6. A Smarter Frontier



- VERSES is a publicly-listed **cognitive computing company** specializing in next generation AI. Founded in 2018 - LA and Eindhoven in the EU..
- We a **software** company. We build **tools that allow you to build AI agents**. Those tools are:
 - Inspired by natural principles
 - Based on (neuro)science
 - Grounded in socio-technical standards
- Our smart software (AI) **“smartware”** operates “like humans do.” It can:
 - Perform cognitive tasks: think, learn, understand, predict, and update its understanding.
 - Perform physical tasks: fly a drone, drive a car, “see” through a camera.
 - Network with other smartware.
- Our mission is to **transforms society for the better** using smarter software.



V VERSES



1. STANDARDS

Genius

2. VERSES AI PLATFORM

**3. INTELLIGENT AGENTS
based on ACTIVE INFERENCE**

AI-BASED AUTONOMOUS SOLUTIONS



SMART LOGISTICS

SUPPLY CHAIN

- Wayfinding to exact location
- Spatial Tasks and Instructions
- Capacity Optimization
- Rapid Asset Location
- Dynamic IOT Integration
- Spatial Analytics & Simulation



SMART FACILITIES

FACILITY MANAGEMENT

- Inventory & Equip Management
- Optimized Routing
- Activity Validation
- Facility Management
- Regulatory Compliance
- Emergency Response



SMART CITY

SMART CITY & MOBILITY

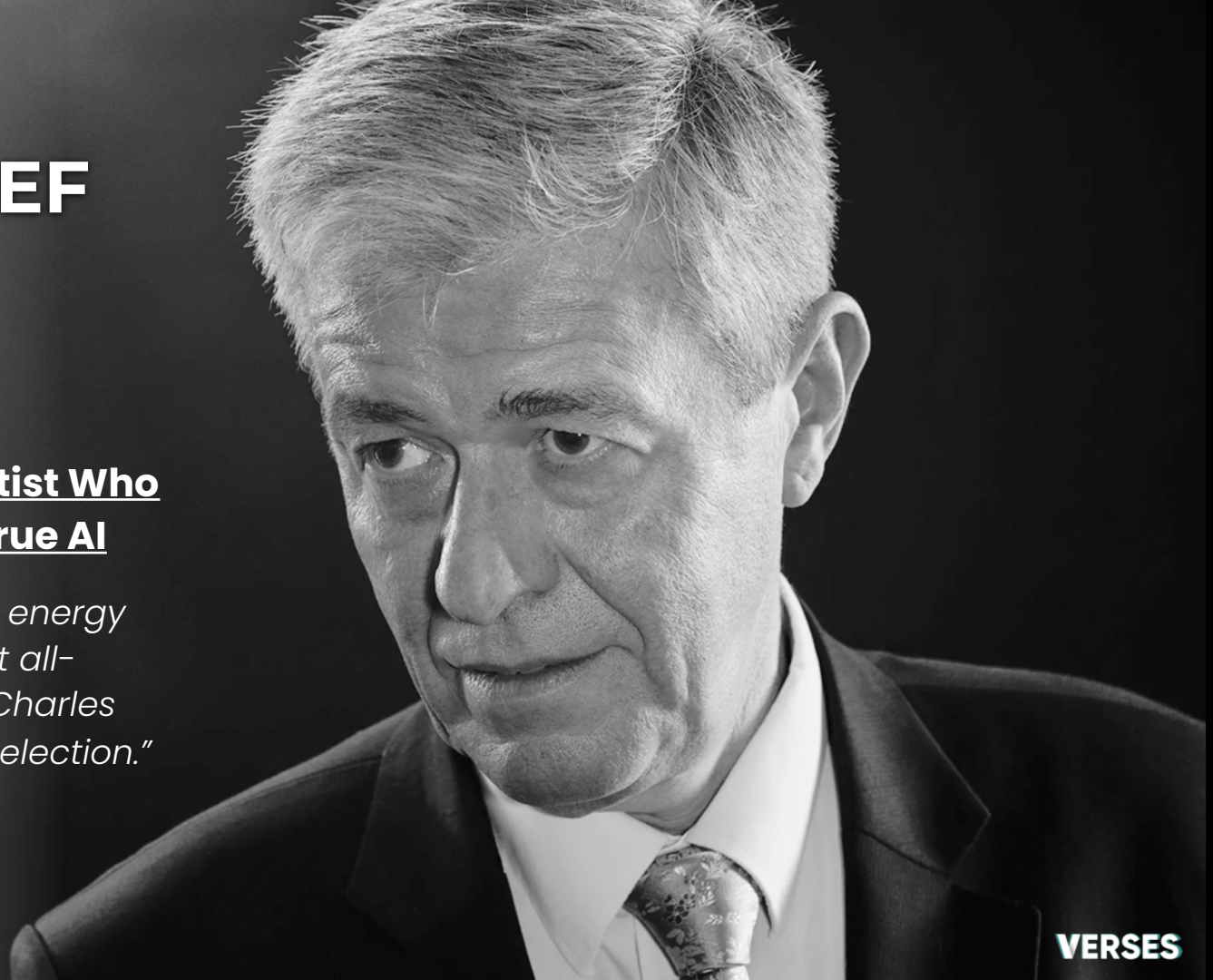
- Land Title Management
- Mobility / Drone Compliance
- Climate Accounting
- Identity & Facial Recognition
- Public Services
- Digital Certificate Issuance

VERSES CHIEF SCIENTIST

WIRED

The Genius Neuroscientist Who Might Hold the Key to True AI

"Professor Karl Friston's free energy principle might be the most all-encompassing idea since Charles Darwin's theory of natural selection."



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A black and white photograph of Henri Bergson, an elderly man with a mustache, wearing a dark suit and a white shirt with a dark tie. He is seated at a desk cluttered with papers and a typewriter. The background is a bookshelf filled with books.

We express ourselves in words;
We think in terms of space.

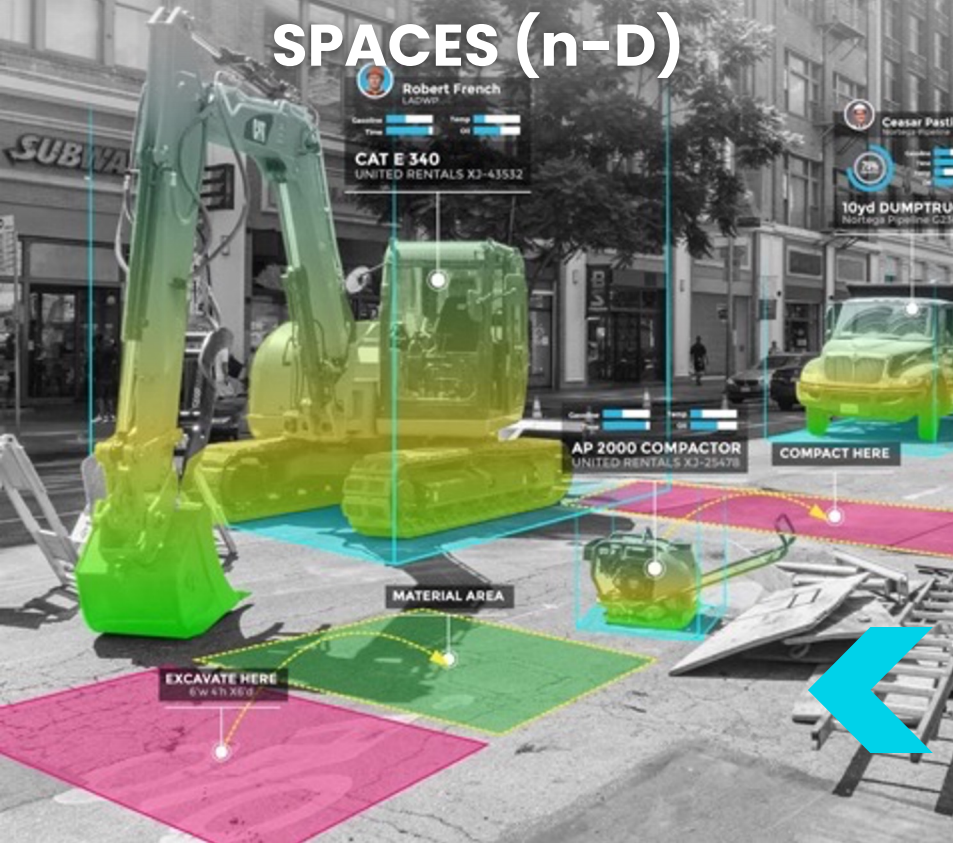
HENRI BERGSON, 1889

VERSES

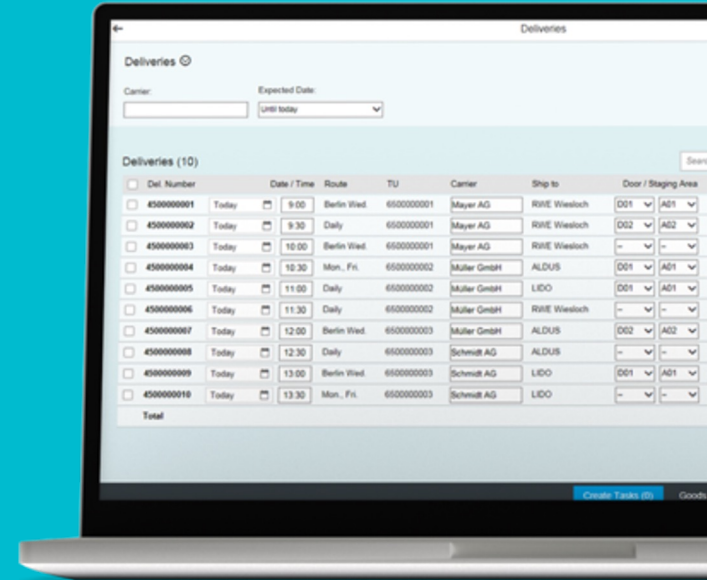
PROGRAMMING AND COMPUTING IN SPACE

Today's Enterprise Systems are "Dimensionally-Challenged"

SPACES (n-D)



PAGES (2-D)



The next frontier will need smarter AI

Artificial Narrow Intelligence (ANI)

ANI describes AIs that are good at a particular task at a level equal or better than a human being.

EXAMPLE

Virtual assistants, such as Siri or Alexa.



Artificial General Intelligence (AGI)

AGI is an AI that can perform any task that a human being can. This is what most of us think of when we think of AI.

EXAMPLE

David, the child-like android from the 2001 movie Artificial Intelligence.

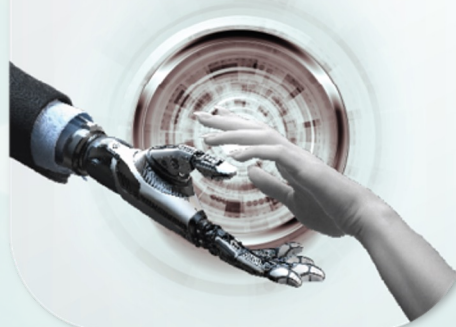


Artificial Super Intelligence (ASI)

This is an intelligence that surpasses anything that humans can do.

EXAMPLE

Marvel's J.A.R.V.I.S. (Just A Rather Very Intelligent System)



The next frontier will become autonomic

AUTOMATIC



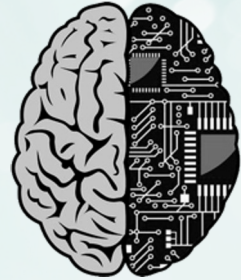
AUTOMATED



AUTONOMOUS

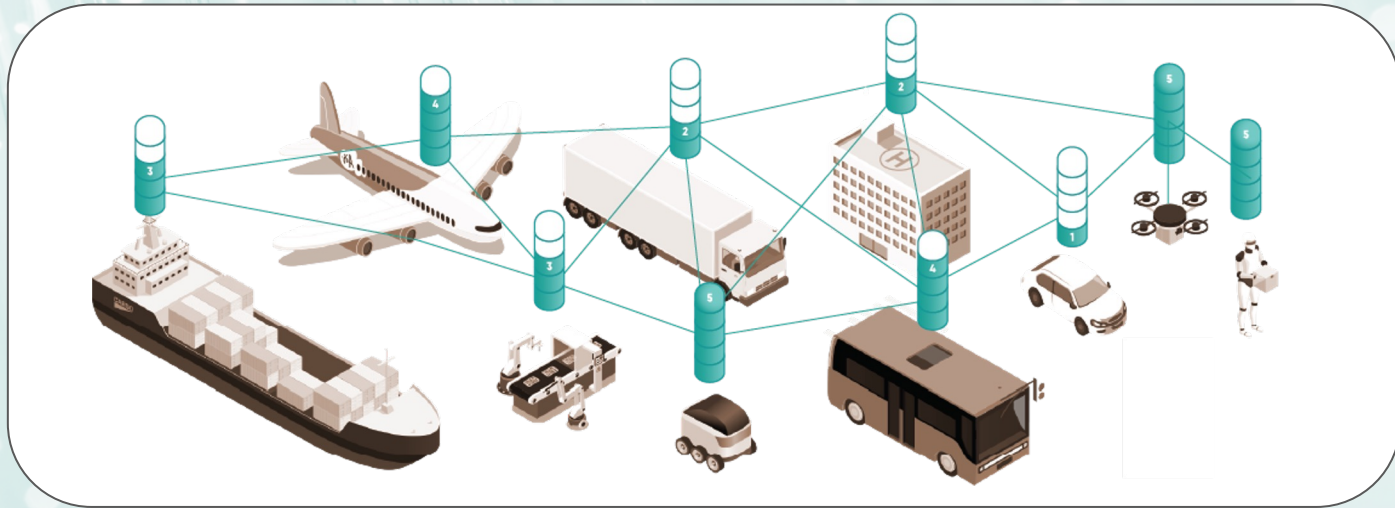


AUTONOMIC



Beyond screens and into the physical world

- Software + Robotic & IoT systems = **Cyber-Physical Systems (CPS)**
- AI + CPS = **Autonomous Intelligent Systems (AIS)**



THE NEXT FRONTIER FOR IOT, EDGE, WEB 3.0

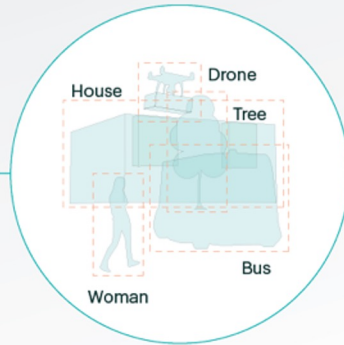
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USE CASE MODELLING BASED ON STANDARDS

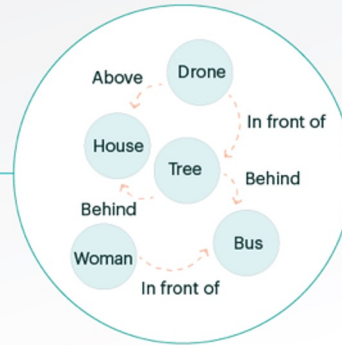
Grounding Elements



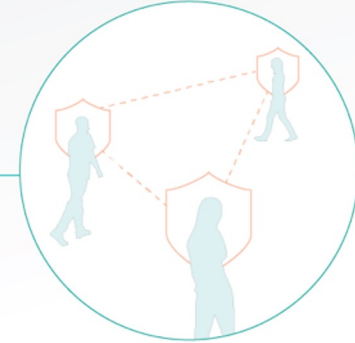
Coordinates Geography, Geometry, and Addresses



Context Relationships, Interdependencies, and Meta-data



Credentials Rights, Permissions, and Policies



Source: VERSES

100 + GLOBAL MEMBERS

(Academia, government, business leaders)



INTERNATIONAL STANDARDS
ASSOCIATION

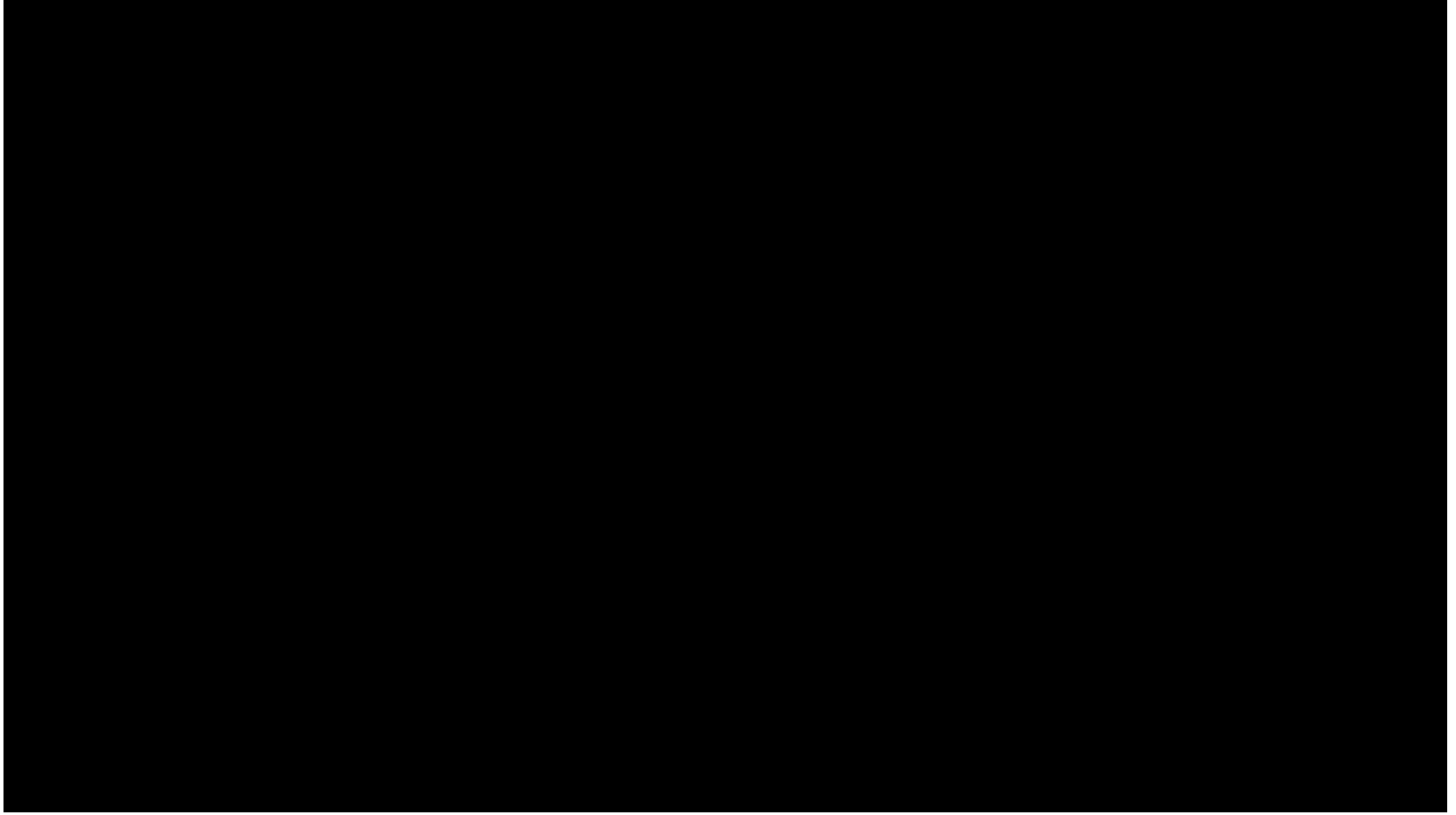
**Hyperspatial Transaction Protocol (HSTP) &
Hyperspatial Modeling Language (HSML)**

SPATIAL WEB WG P2874

**Open, Interoperable
“public imperative”**

Also informed by IEEE’s Ethically-Aligned Design P7000 Series of standards that provide guidance for the support of human rights, well-being, accountability, and transparency for AI and Autonomous Intelligent Systems

LAW AS CODE



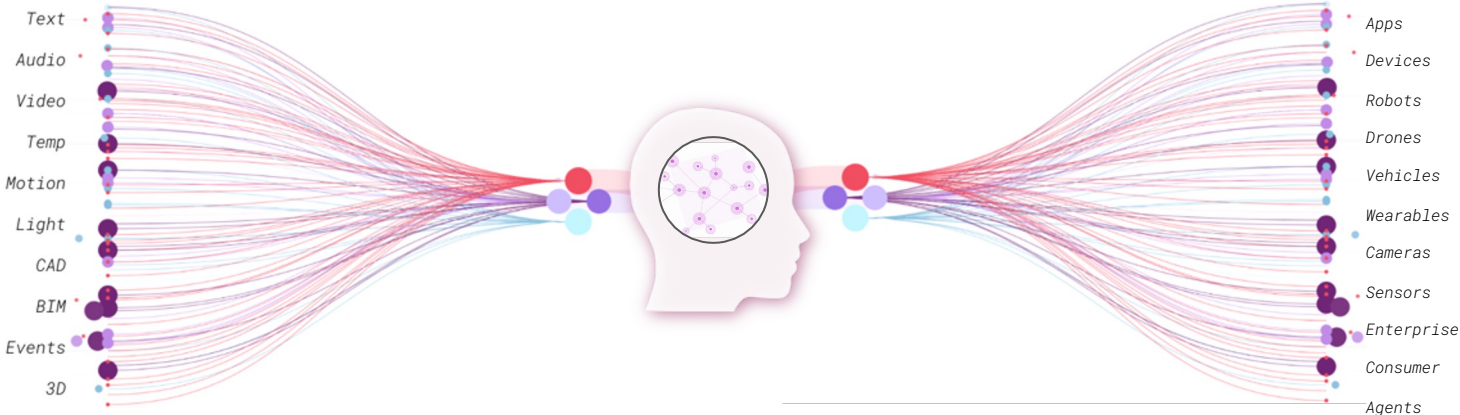
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SMARTER AI

GENIUS AGENTS CONTINUOUSLY SHARE KNOWLEDGE MODELS BETWEEN EDGES

DATA SPACES / FORMATS / SCHEMAS



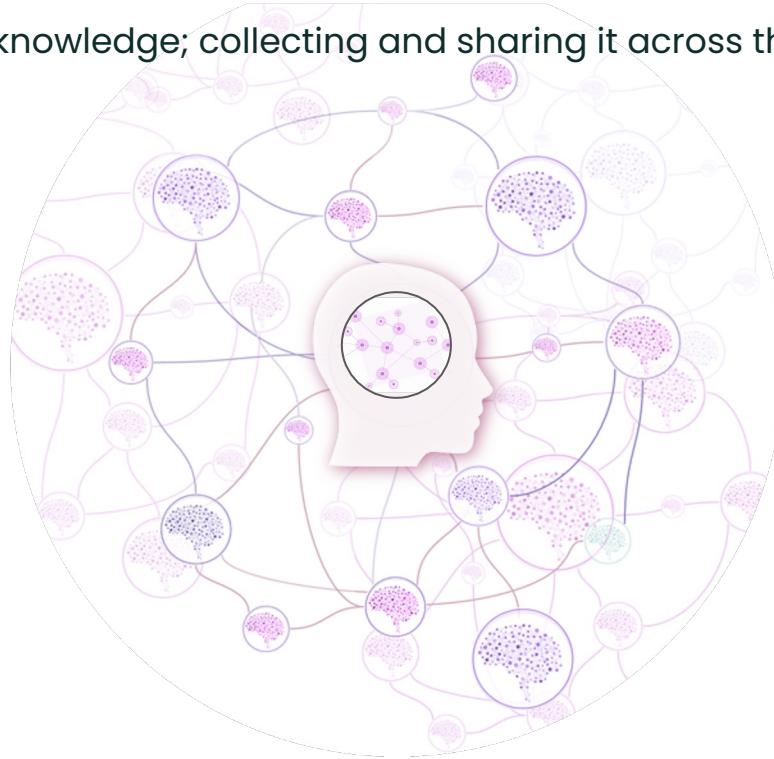
● SENSE ——— LEARN ——— PLAN ——— ACT →

NETWORKED AI

Agents *grow* in knowledge; collecting and sharing it across the KOSM network.

Genius Network

Free data from siloed schemas and systems enabling a globally shared knowledge base for data, devices, and AI across the universal computing network known as the Spatial Web.



KNOWLEDGE SHARING

- Interoperability
- Composability
- Scalability
- Governance
- Automation

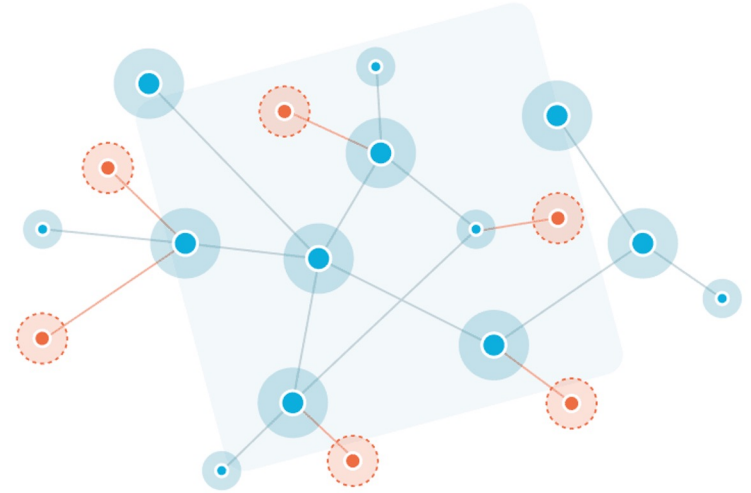
FRUGAL AI

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**BIG
DATA**

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VS



Smart Data





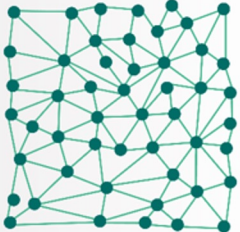
SELF-REGULATING INTELLIGENCE

- **AI will evolve from large language models to nimble "Intelligent Agents"** that will communicate, exchange knowledge, and work together to tackle dynamic challenges.
- These Agents will be empowered by a new approach to AI using a framework borrowed from neuroscience called **"Active Inference,"** developed by Karl Friston.
- Based on how intelligence manifests in the brain, **it provides a blueprint for intelligent agents to learn, plan and act.**

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AIS International Rating System (AIRS)

	AIS 1	AIS 2	AIS 3	AIS 4	AIS 5
Intelligence Level	<p>Systematic</p> <p>Recognizes and responds to patterns. Follows predefined rules. Abilities limited to specific tasks or domains.</p> <p>Narrow Intelligence</p>	<p>Sentient</p> <p>Perceives its environment and responds in real time. Exhibits curiosity and seeks out information to update its model.</p> <p>General Intelligence</p>	<p>Sophisticated</p> <p>Learns and adapts to new situations and plans based on the consequences of actions or beliefs about the world.</p> <p>General Intelligence</p>	<p>Sympathetic</p> <p>Understands and responds to the emotions and needs of humans and other AIs and considers different perspectives.</p> <p>Super Intelligence</p>	<p>Shared</p> <p>Works together with humans, agents, and physical systems to solve complex problems, outperforming humans at most tasks.</p> <p>Super Intelligence</p>
Governance Potential	 <p>Centralized</p>	 <p>Hierarchical</p>	 <p>Federated</p>	 <p>Decentralized</p>	 <p>Distributed</p>

HOW TO MAKE SAFER AI ?



www.verses.ai/ai-governance

THE NEXT FRONTIER FOR IOT, EDGE, WEB 3.0

1. About us
2. An Intelligent (Spatial) Web
3. World modelling and *Socio-technical Standards*
4. Genuine *Natural Intelligence*
5. AI Governance and *Compliance by Design*
6. **A World Smarter by Nature**

THE NEXT FRONTIER FOR IOT, EDGE, WEB 3.0

Common world model based on **social technical standards**



Adaptive intelligent agents based on first principles in inspired by nature



Organised in a **connected Network**

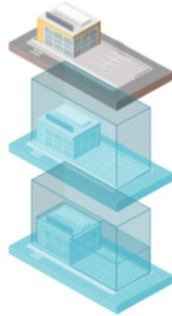


The power to make the world genuinely smarter.

Efficient, compliant, and secure flow of people and things across locations.

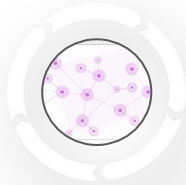
Spatial Web Standards

Spatial Domains



+

HSML & HSTP

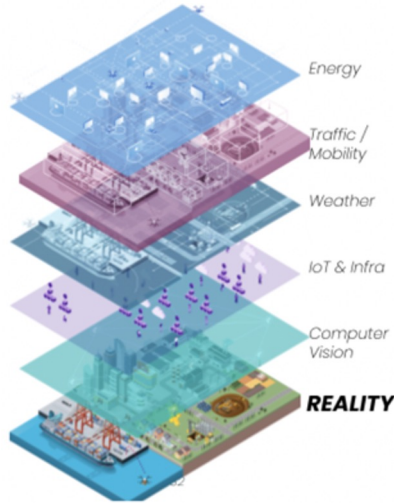


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WORLD MODEL

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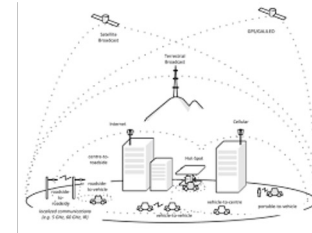
Interoperable Maps & Twins / AI models



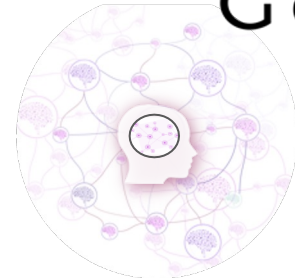
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Policy abiding AI-Agents & Networked intelligence

Governance of activity, identity, locations and spaces



Genius





THANK YOU!

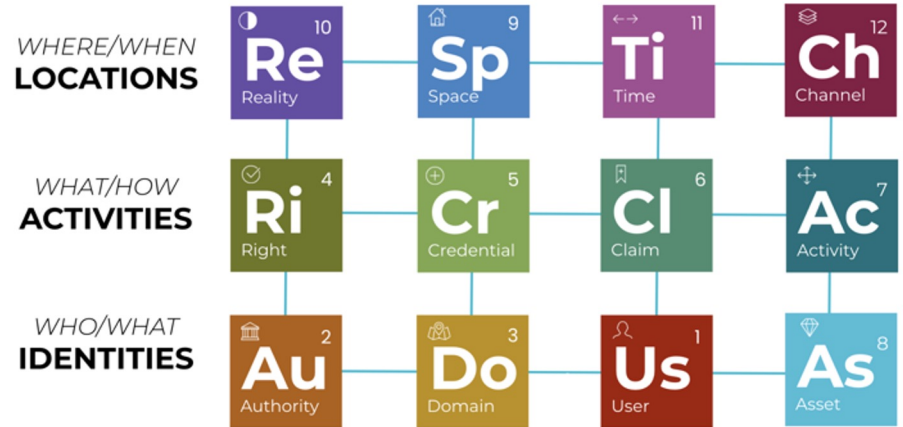
Philippe Sayegh

Chief Adoption Officer

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HSML: MODELING HUMAN KNOWLEDGE

- **HSML** encodes properties of physical objects, logical concepts, and contextual activities linking people, places, things and AI.
- And facilitates **multimodal modeling** and **knowledge sharing** among machines and humans, while addressing **ethical, moral, economic, and societal considerations**.



HSTP: COMMUNICATION FOR DATA & DEVICES

- **HSTP provides a universal, secure, and verifiable protocol for communicating HSML** between digital and physical systems.
- Ensuring **seamless interaction** between diverse AI systems.
- It incorporates a **zero-trust architecture** for secure data exchange and control over AI operations.



SHARED UNDERSTANDING

By bridging the communication gap between AI systems and humans, we can ensure AI's alignment with societal norms and values

Grounding AI in a shared model of the world gets us:

- Explainability
- Trust
- Alignment
- Compliance
- Interoperability



LEGISLATION : CURRENT AND FUTURE-PROOF

How can we create policies and regulations for both humans and AIs/machines?

