FARI

AI Center for the Common Good

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AI5050

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An Initiative of UNIVERSITÉ LIBRE DE BRUXELLES ULB VUB VRIJE UNIVERSITEIT BRUSSEL

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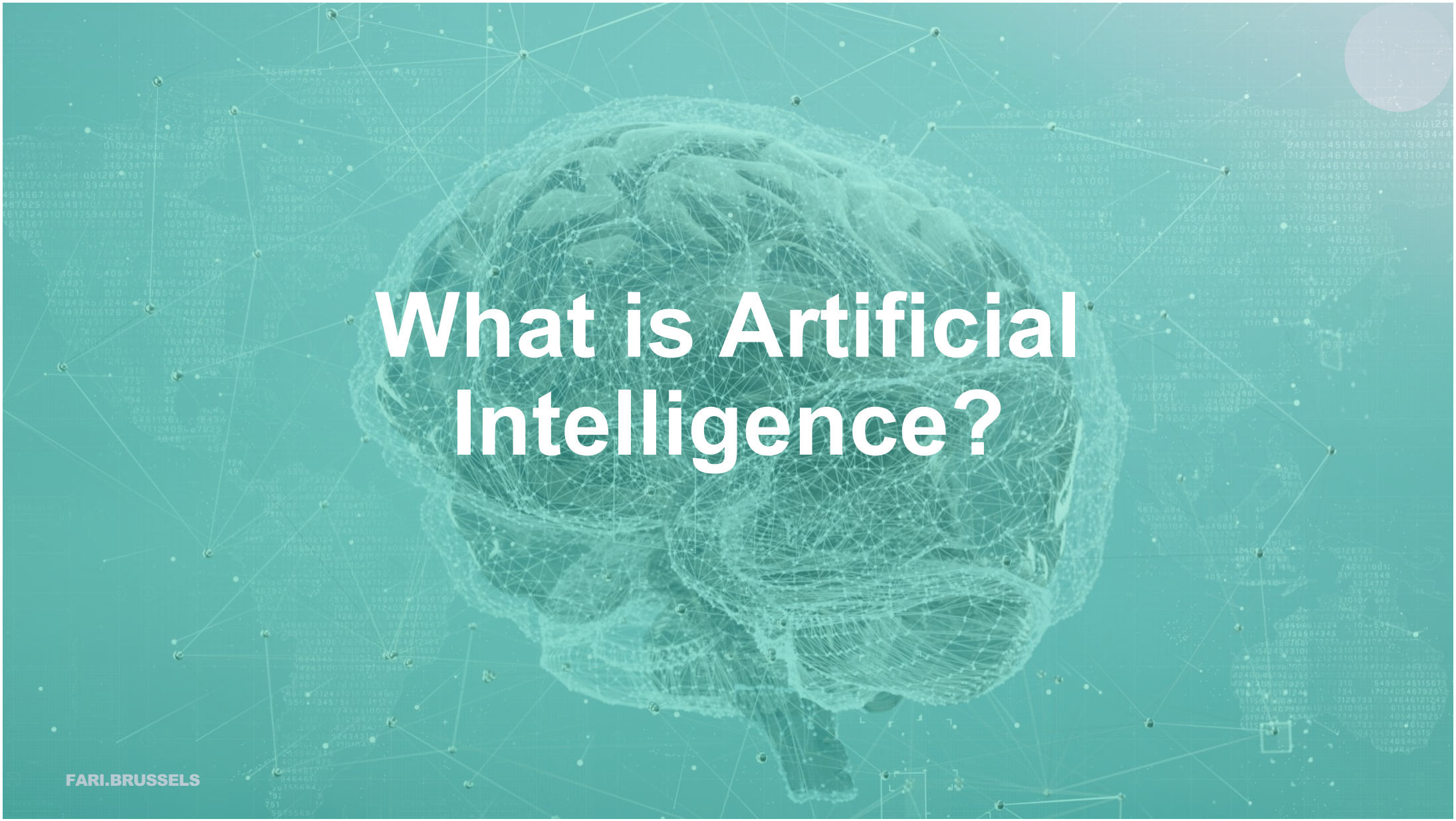
FARI AI FOR THE COMMON GOOD INSTITUTE BRUSSELS

« Technological progress not accompanied by wisdom is not real progress »

- Caroline Pauwels


What is Artificial Intelligence?
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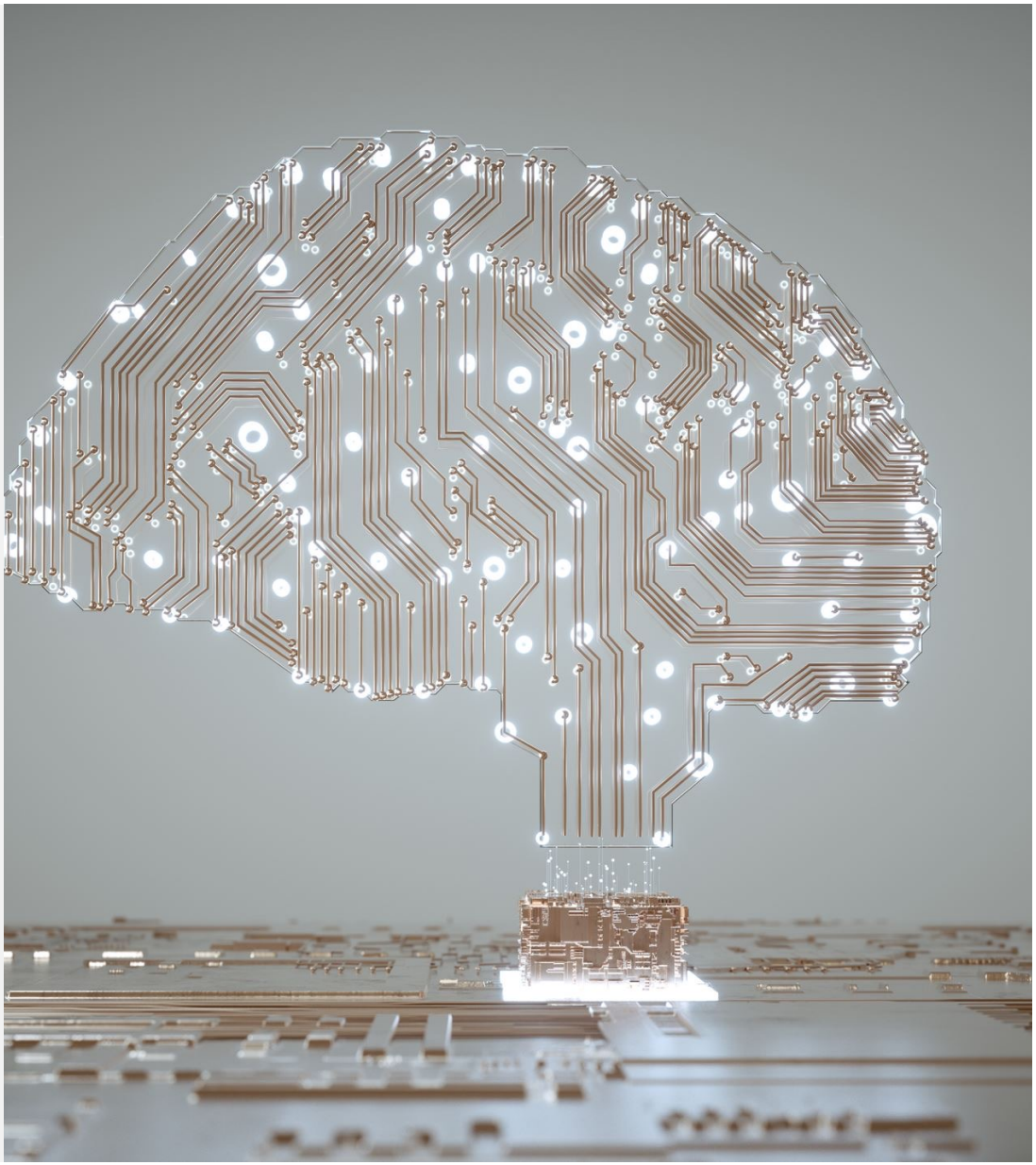
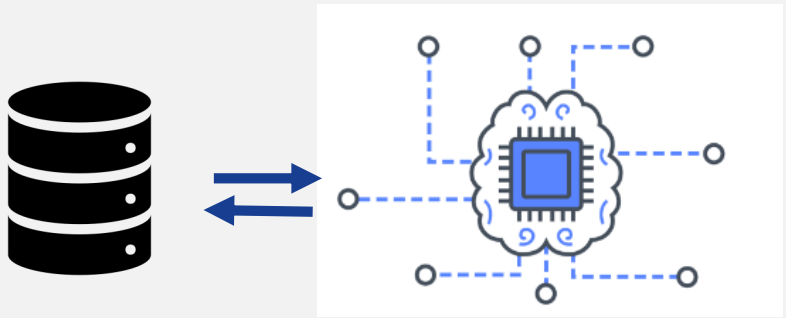
Artificial Intelligence is a field that studies

1. the nature and mechanisms of intelligence
   (big ideas, multi-disciplinary)
2. using formal methods, and
   (mathematics)
3. attempts to reconstruct it.
   (computer science & robotics)



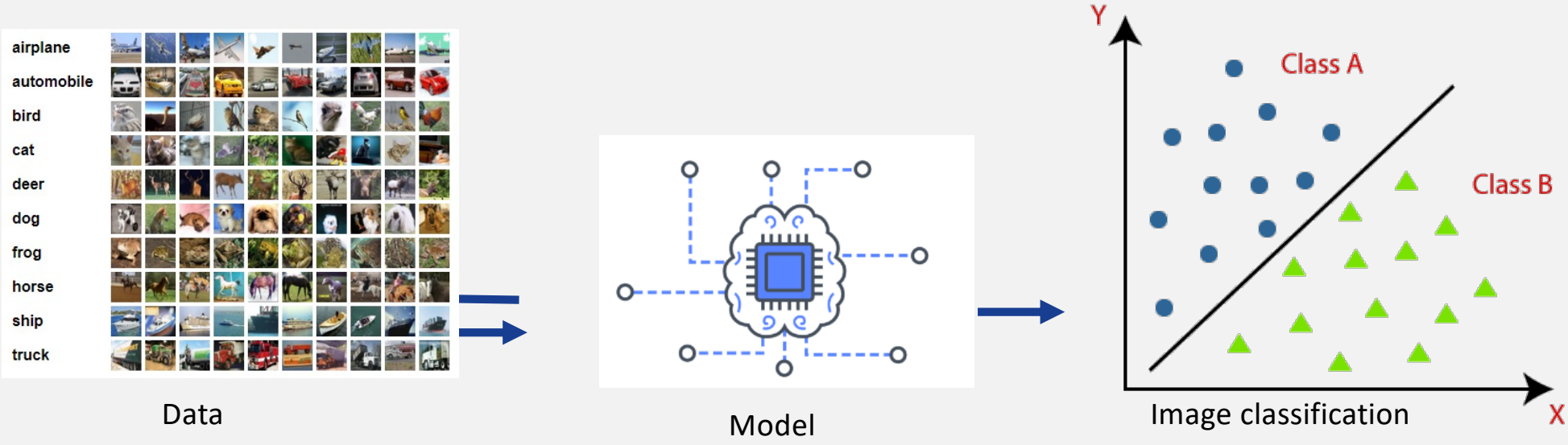
Machine learning

1 type of AI systems that improve their performance, depending on the data they process



So how does it work ?

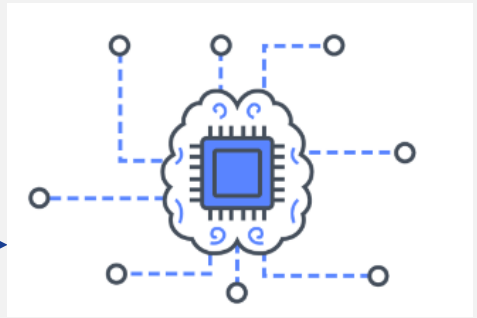
Example: classification



From classification to analysis & prediction

No.	Number of times pregnant	Plasma glucose concentration	Diastolic blood pressure	Triceps skin fold thickness	2-Hour serum insulin	Body mass index	Diabetes pedigree function	Age	Diabetes
1	6	148	72	35	0	33.6	0.627	50	tested_positive
2	1	85	66	29	0	26.6	0.351	31	tested_negative
3	8	183	64	0	0	23.3	0.672	32	tested_positive
4	1	89	66	23	94	28.1	0.167	21	tested_negative
5	0	137	40	35	168	43.1	2.288	33	tested_positive
6	5	116	74	0	0	25.6	0.201	30	tested_negative
7	3	78	50	32	88	31.0	0.248	26	tested_positive
8	10	115	0	0	0	35.3	0.134	29	tested_negative
9	2	197	70	45	543	30.5	0.158	53	tested_positive
10	8	125	96	0	0	0.0	0.232	54	tested_positive
11	4	110	92	0	0	37.6	0.191	30	tested_negative
12	10	168	74	0	0	38.0	0.537	34	tested_positive
13	10	139	80	0	0	27.1	1.441	57	tested_negative
14	1	189	60	23	846	30.1	0.398	59	tested_positive

Data

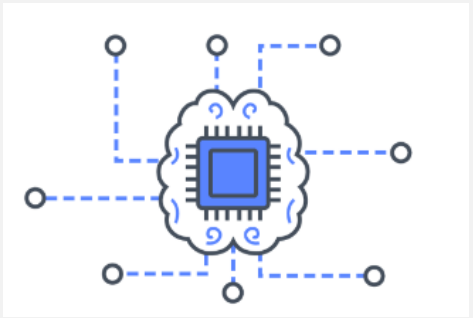


Model

Diabetes prediction

BUT…
Life is not always black & white ☺

New data



Model

SHEEP

Why is AI such a big deal?

AlphaFold: Protein Folding Prediction

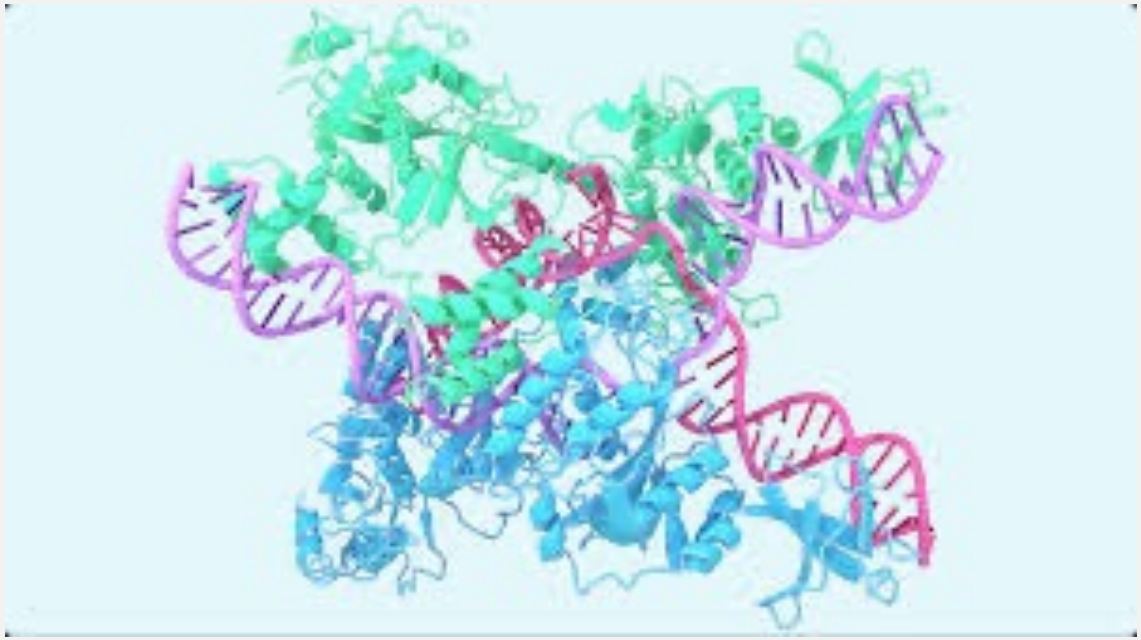


Image / Pattern Recognition - and Diagnostics

Autonomous Systems and Robotics

And why was that impossible before?

Pattern recognition is incredibly hard to grasp

Availability of massive computing power

Putting the breaks on...

What to be mindful of when developing & using AI systems?

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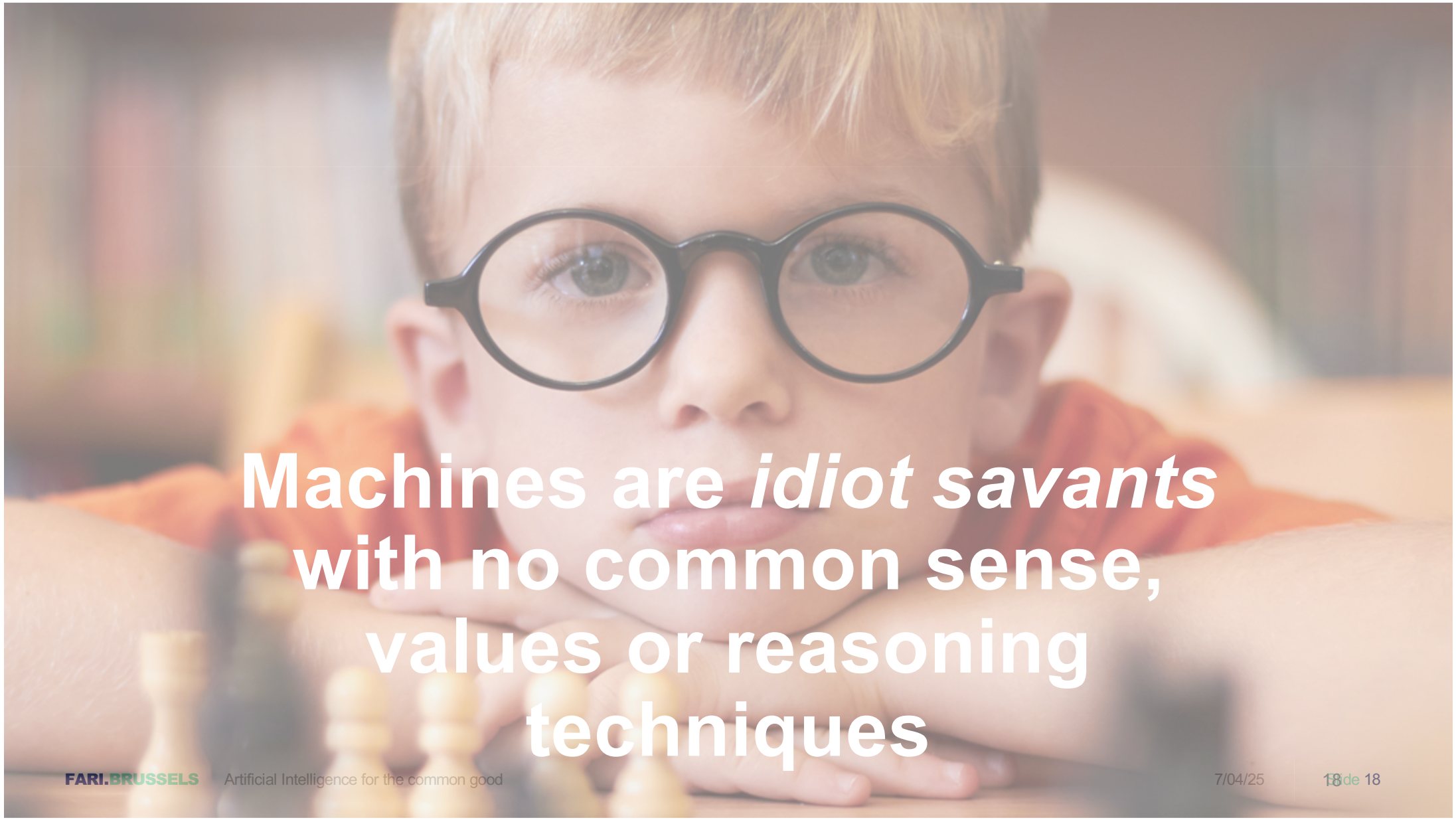
Where our human brain (still) massively outperforms Artificial Intelligence


Machines are *idiot savants*
with no common sense,
values or reasoning
techniques

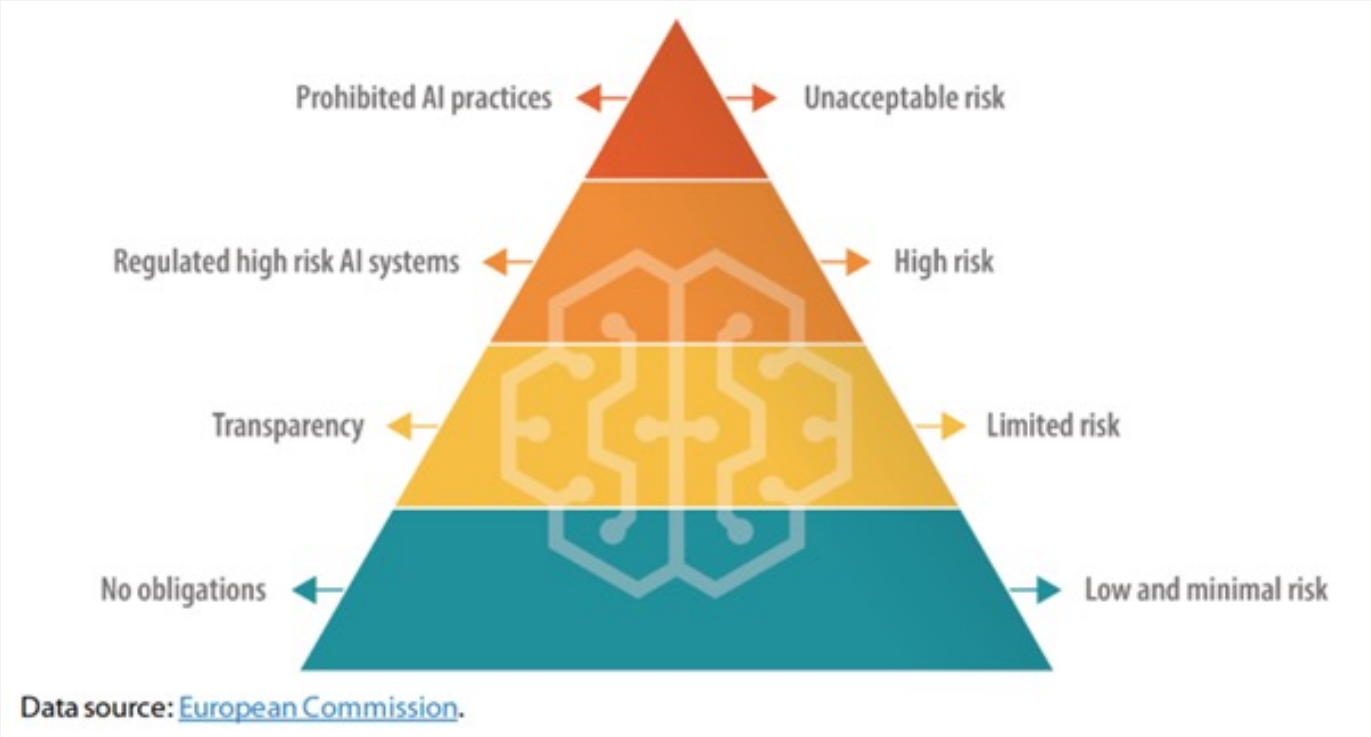

Machines don’t adapt
(endlessly) flexibly to new –
and unexpected -
circumstances

Machines cannot (yet) reason in the face of incomplete and even inconsistent information

Bias often gets built into in the system


Abuse is just as likely as with any other technology

AI Act: the first EU regulatory framework on Artificial Intelligence (passed by European Parliament on 16 June 2023)



Sustainable AI: will we be able to control the ecological footprint ?

So let’s focus on responsible, sustainable & explainable AI. That’s our joint responsibility.

Innovation requires balance between human & artificial intelligence

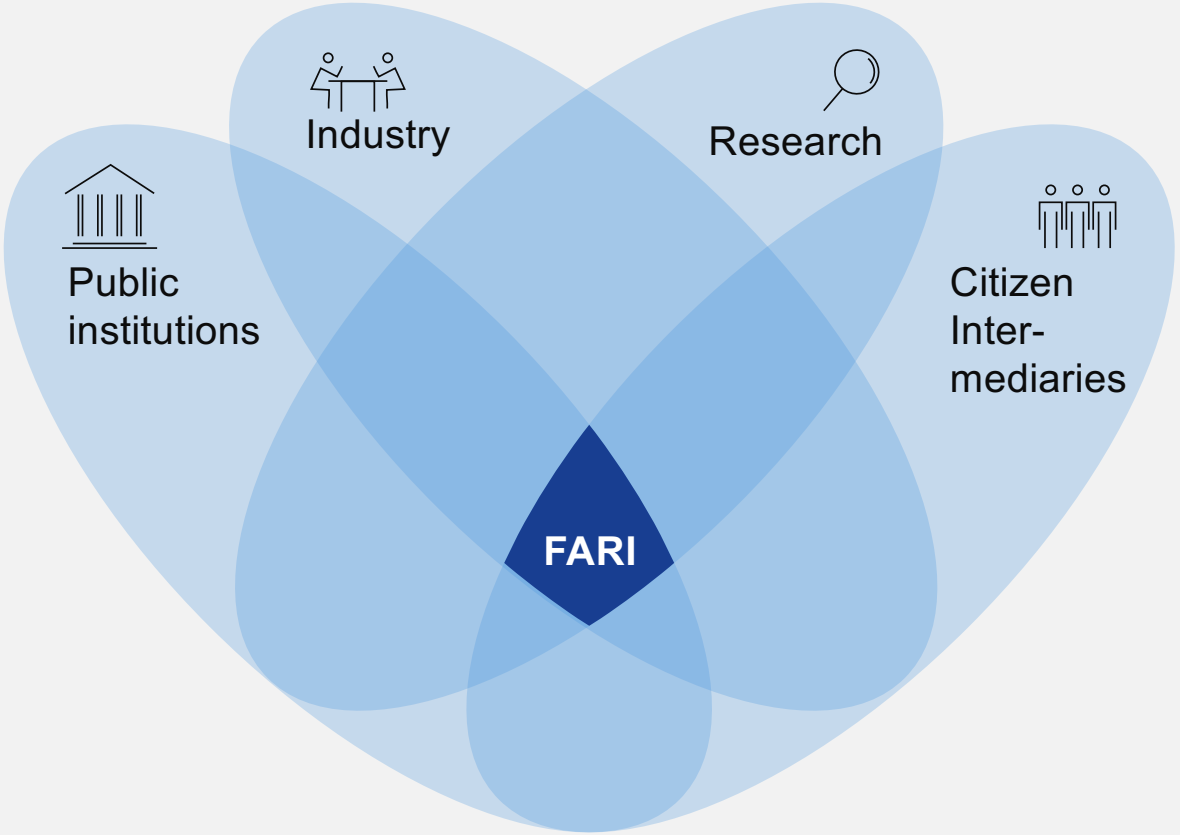
Need a little help?

FARI’s unique approach to responsible & trustworthy AI

FARI is a non-profit university institute on AI, data and robotics focused on the Common Good. We are jointly initiated by two Brussels universities (VUB & ULB) - uniting the interdisciplinary expertise across 10 research groups on AI, data, robotics, social sciences, ethics, and law.

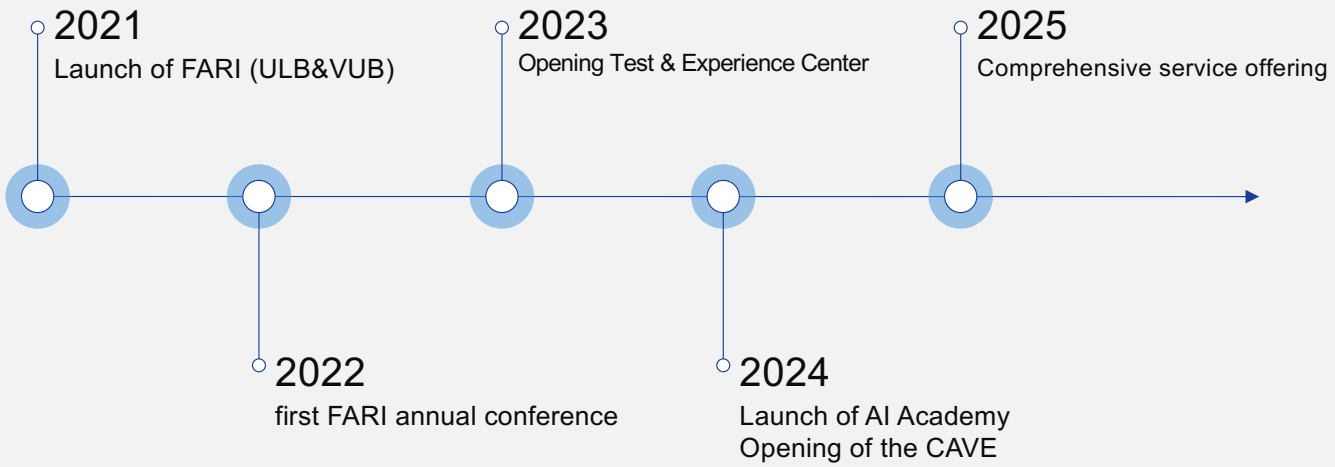
We do research and build bridges with public administrations, industry, and citizens, promoting sustainable AI, data & robotics with a focus on urban and public priority domains such as health, mobility, sustainable robotics, climate and energy, participatory and inclusive society.

Bridge between public institutions, industry, research and citizens

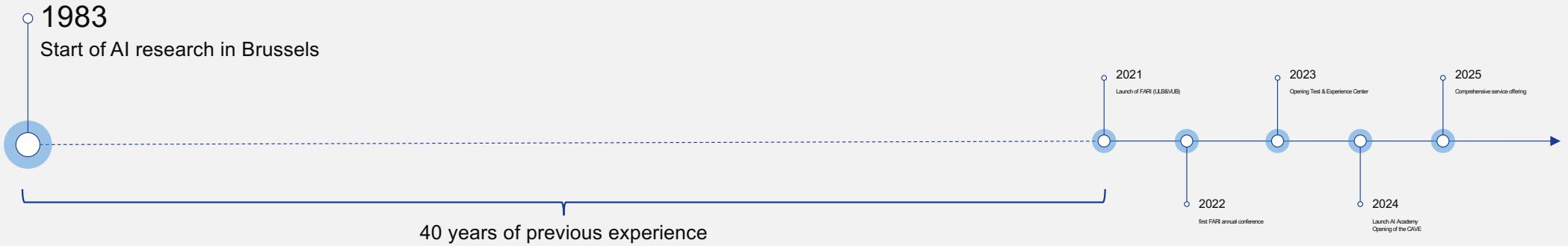


A young institute …

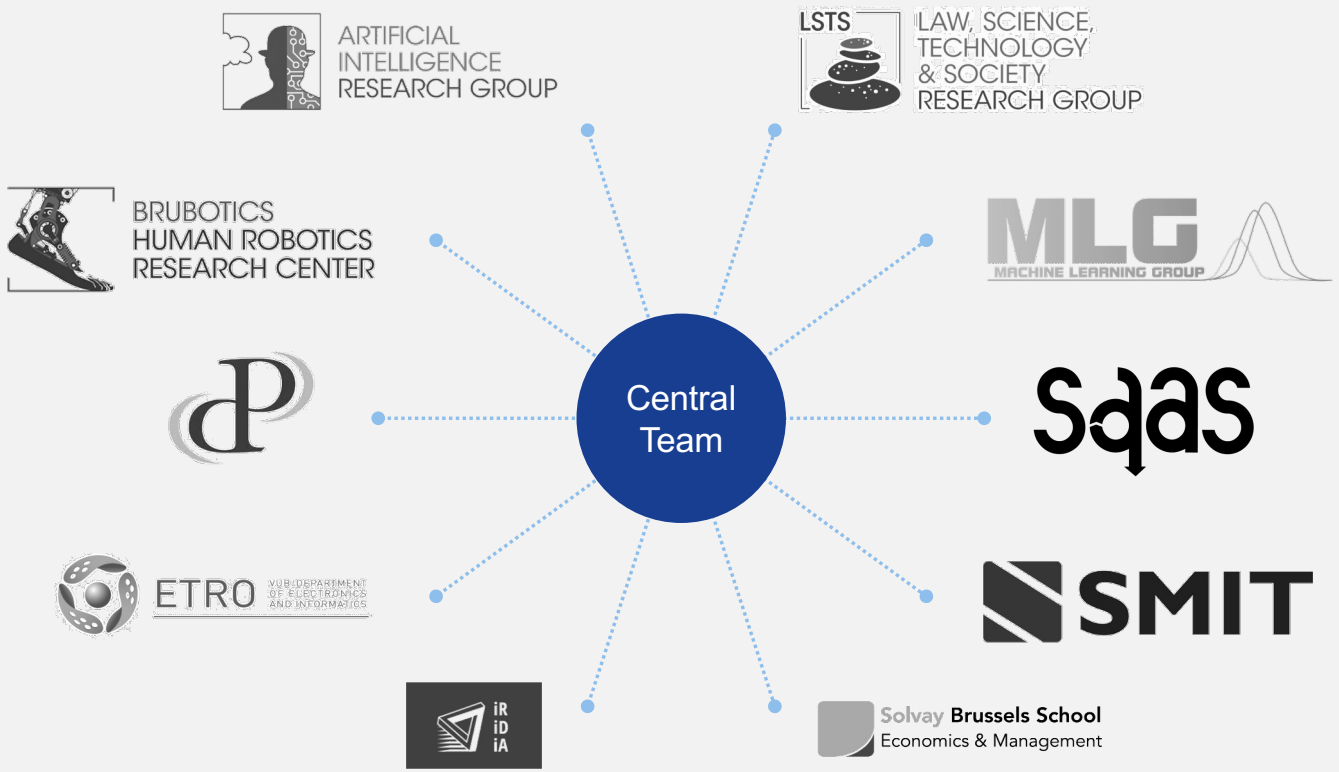
ls



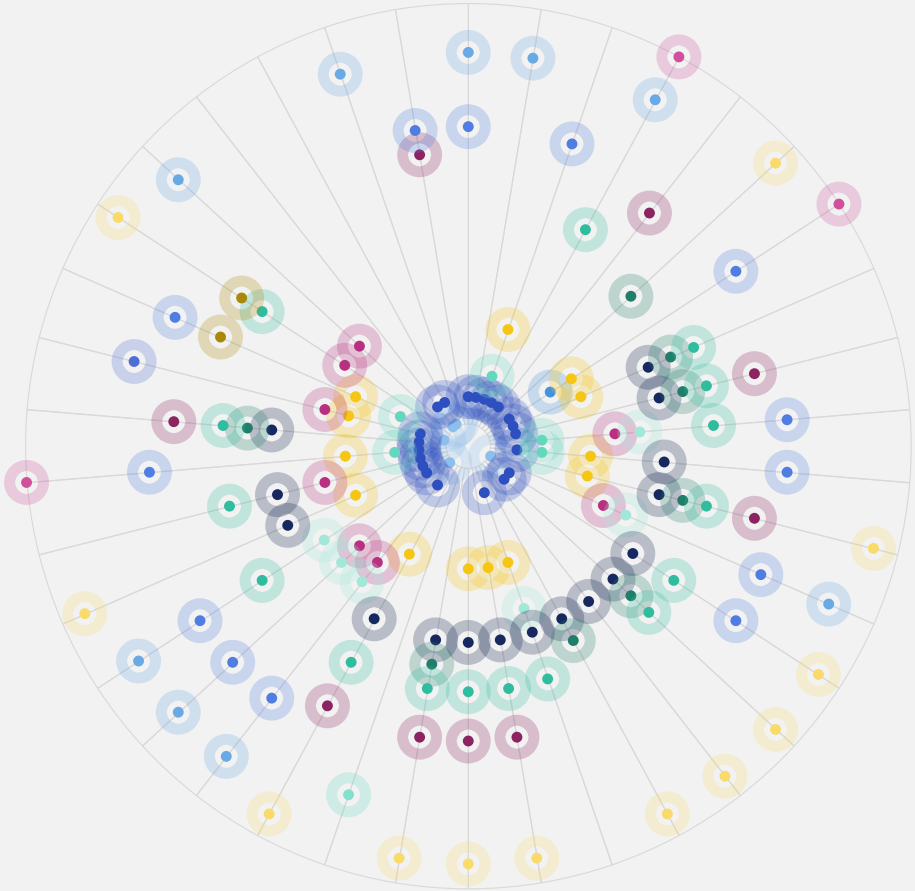
… built upon 40 years of previous research



10 affiliated research groups across VUB & ULB



FARI's interdiciplinary team help tackle all new challenges



With a wide range of skills

- AI Algorithms
- Artificial Intelligence
- Bioinformatics
- Cognitive Science
- Data Science
- Decision Support
- Embedded AI
- Ethics
- Humanities
- Interaction with humans
- Knowledge Reasonning
- Law
- Machine Learning
- Multi-agent Systems
- Natural Language Processing
- Robotics
- Social Sciences
- Vision and image Recognition

Our 3 branches allow us to build knowledge and practical solutions and share them

Research and innovation

Education and Learning

Building a Community of practice

How can we be of service?

	GET A TASTE	LEARN	CUSTOMIZE	APPLY	GO BEYOND
AI Academy	Teaser sessions	Catalogue trainings	Applied learning sessions	Coaching	
Services	Customised visits & events	Customized learning journeys	Applied expertise	Guidance & Consultancy	
R&D Support			Expertise brokerage	Applied Research & Innovation	Contract research

Main FARI achievements & impact to date

Research and innovation

12
New projects granted

6
Pilot projects achieved

+3
Collaborative projects ongoing

6
Citizen science projects

15
15 PhD grants on AI for the Common Good

4
Postdocs on Sustainable Robotics, control or mobility

Education and Learning

1500+
People trained

100
Project based training

10
Courses + Postgraduate program

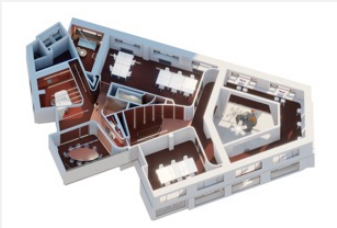
Building a community of practice

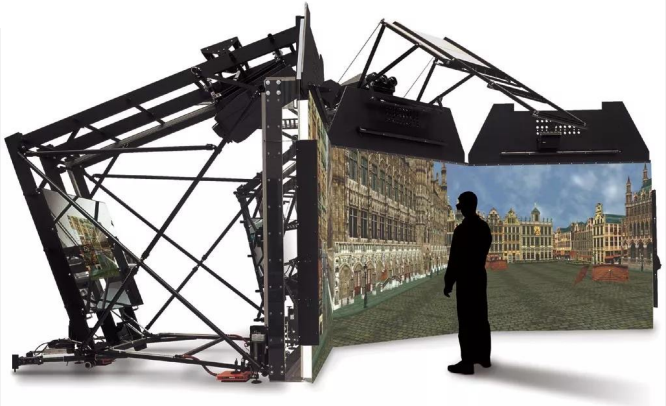
+4000
People

110
Events

10
Countries

Key infrastructure





The FARI Test and Experience Center (600m2)

A place where +15 demonstrations on AI, data, robotics and ethics showcase these technologies and their potential impact.
In this space, events are organized to meet private, public, civic and scientific actors.

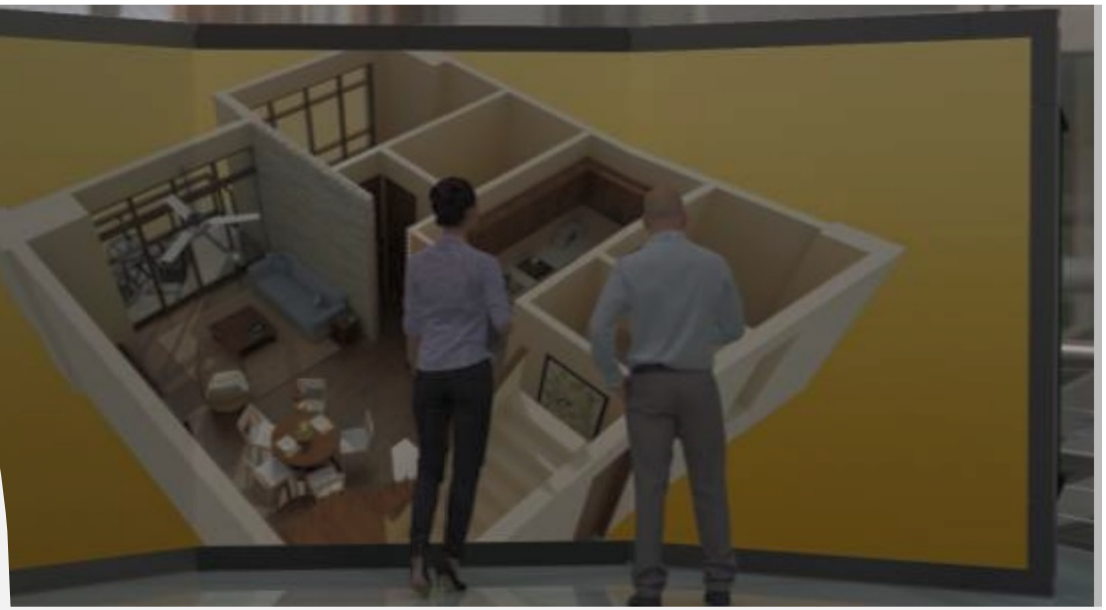
Our Computer Augmented Virtual Environment (CAVE)

Largest CAVE in Belgium: Our 147 sqm CAVE enables full-scale, immersive interactions that deliver insights beyond smaller setups.

4K BARCO Projectors: Three vertical and two floor screens let users walk through digital environments and engage from every angle.

Dual 4090 GPU Cluster: Equipped with two 4090 GPUs for real-time rendering of complex data and designs.

Real-Time Collaboration: Users can explore, manipulate, and interact with projects as if physically present in the virtual environment.



We wish to start new collaborations, to create impactful solutions for the Common Good.
Contact us via email, follow us on social media and share with us your ideas to better our lives.

Contact information

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Cantersteen 16, 1000 Bruxelles
Kantersteen 16, 1000 Bruxelles

Our social networks
FARI - AI for the Common Good Institute

An Initiative of Université Libre de Bruxelles ULB VUB Vrije Universiteit Brussel

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