Citizen science tools and AI

9 October 2023

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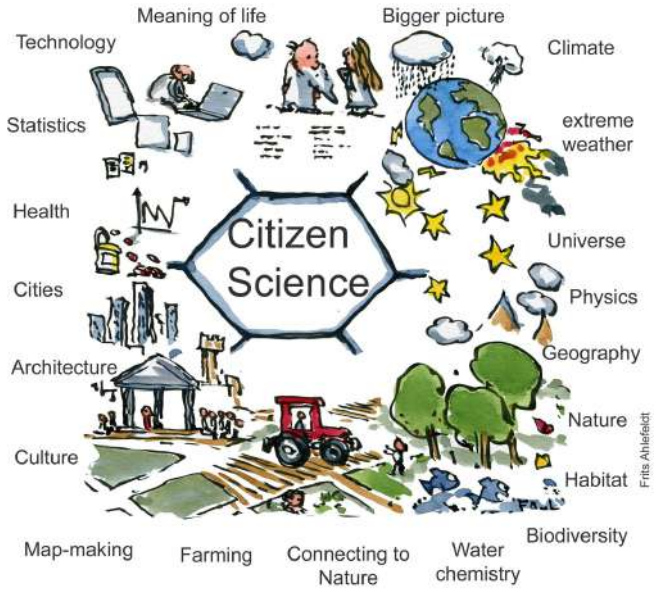
AARHUS UNIVERSITY

TIME4CS

SUPPORTING SUSTAINABLE INSTITUTIONAL CHANGES TO PROMOTE CITIZEN SCIENCE IN SCIENCE AND TECHNOLOGY

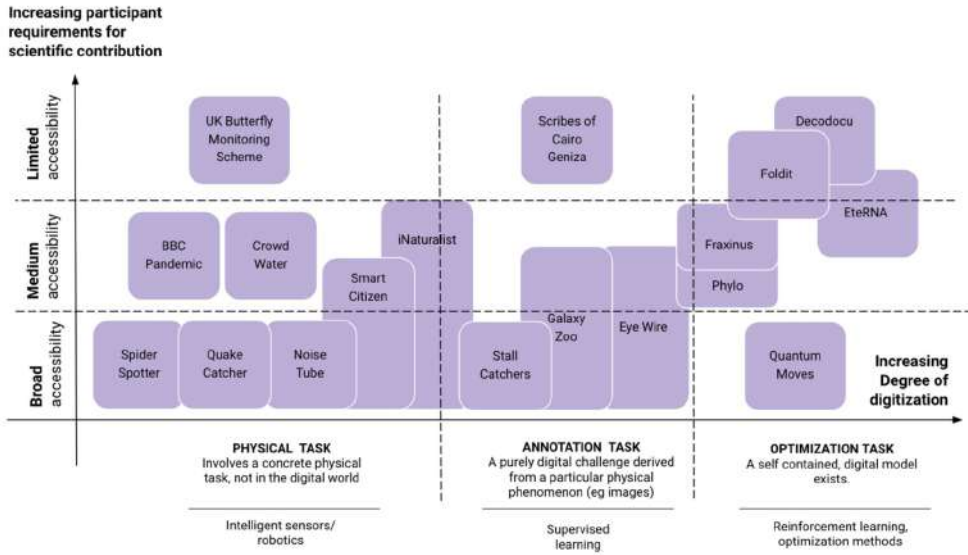
The TIME4CS project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101006201

Citizen science tools and AI?



Scaling Galaxy Zoo with Bayesian Neural Networks

J. Rafner et al. / Human Computation (2022) 9:1



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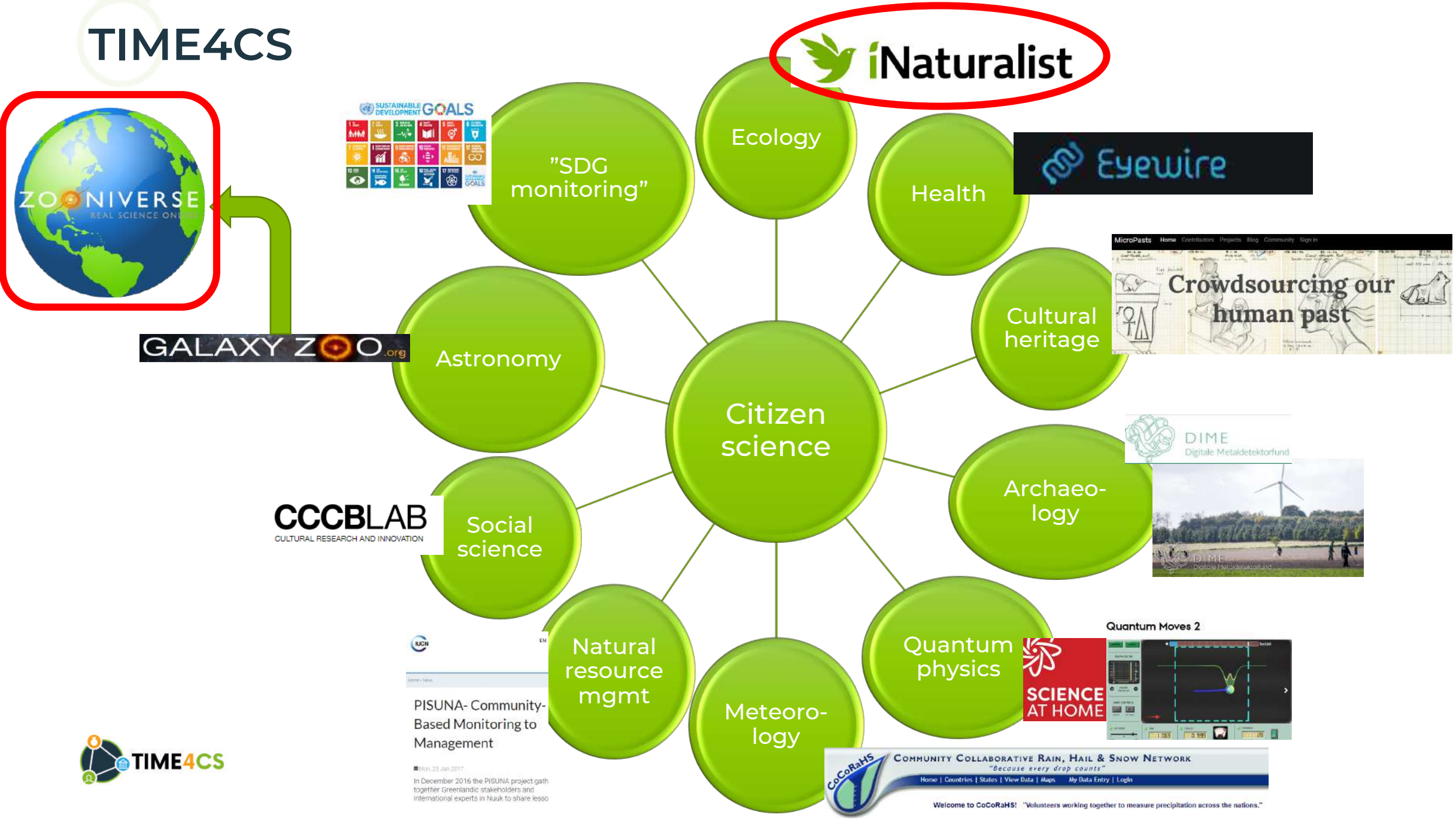

iNaturalist
ZOONIVERSE
REAL SCIENCE ONLINE
GALAXY ZOO.org
SUSTAINABLE DEVELOPMENT GOALS
"SDG monitoring"
Ecology
Health
Eyewire
Cultural heritage
MicroPasts
Crowdsourcing our human past
Astronomy
Citizen science
DIME
Digitale Metaldetektorfund
Archaeo-logy
CCCBLAB
CULTURAL RESEARCH AND INNOVATION
Social science
Natural resource mgmt
PISUNA- Community-Based Monitoring to Management
In December 2016 the PISUNA project gath together Greenlandic stakeholders and international experts in Nuuk to share lesso
Meteoro-logy
Quantum physics
SCIENCE AT HOME
Quantum Moves 2
CoCoRaHS
Community Collaborative Rain, Hail & Snow Network
"Because every drop counts"
Home | Countries | States | View Data | Maps My Data Entry | Login
Welcome to CoCoRaHS! "Volunteers working together to measure precipitation across the nations."
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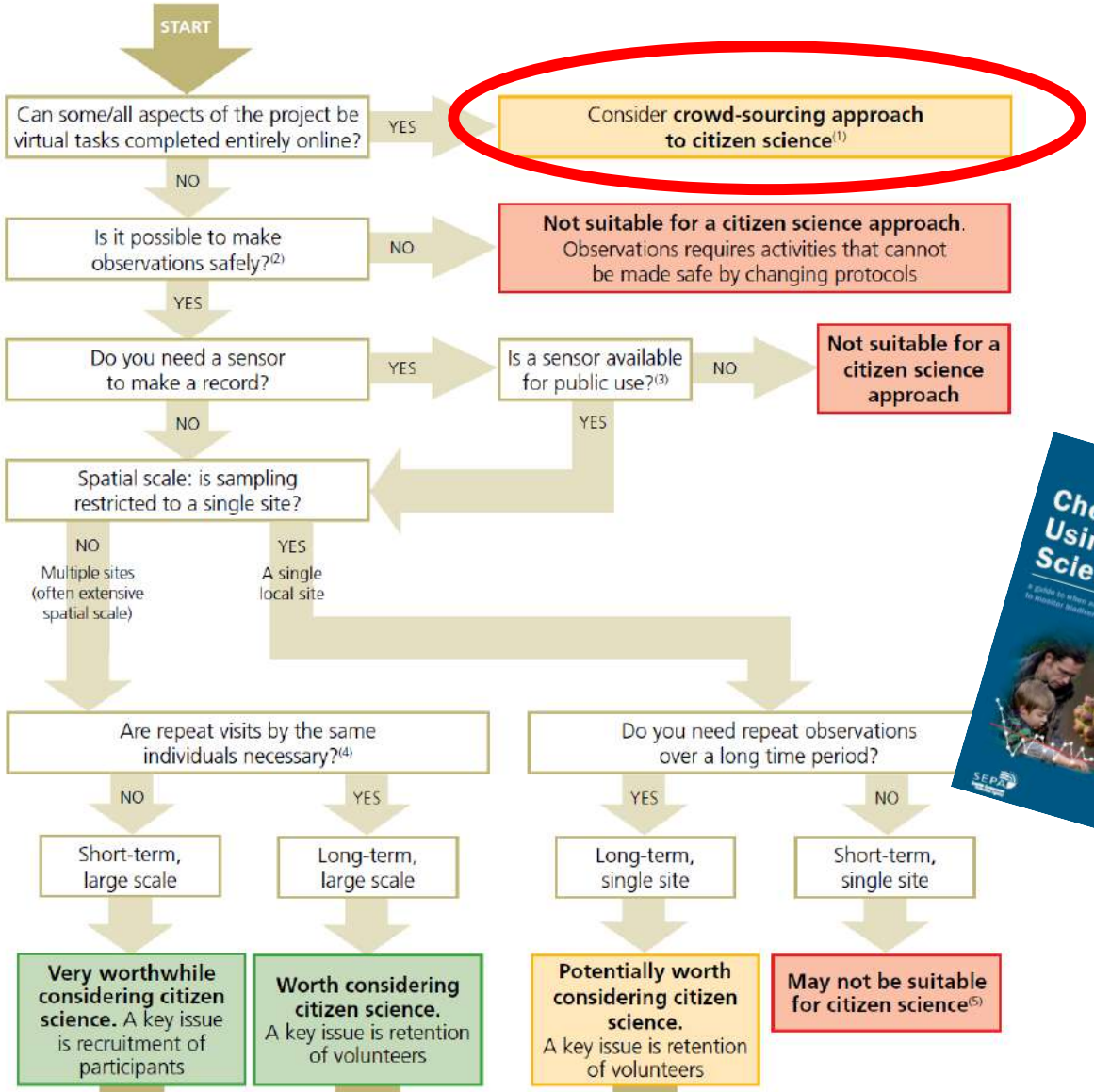
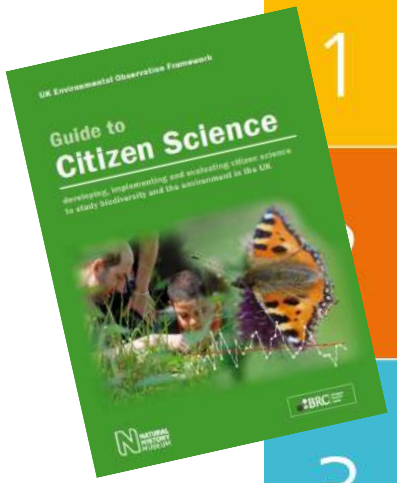
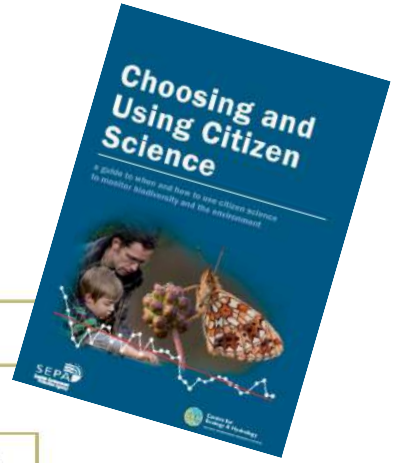
TIME4CS Deciding on using Citizen Science

Part 1 of the decision framework







1	Before you start	
	Is citizen science the best approach?	2
	Choose a citizen science approach	4
	Citizen science flowchart	6
2	First steps	
	Establish project team	7
	Define project aims	8
	Identify funding and resources	9
	Identify and understand target participants	10
3	Development phase	
	Design the survey or scheme	12
	Consider data requirements	14
	Consider technological requirements	16
	Develop supporting materials	17
	Test and modify protocols	19
4	Live phase	
	Promote and publicise the project	21
	Accept data and provide rapid feedback	22
5	Analysis and reporting phase	
	Plan and complete data analysis and interpretation	23
	Report results	24
	Share data and take action in response to data	25
	Evaluate to maximise lessons learned	26
	Resources and links	

Pocock et al. 2014: https://www.ceh.ac.uk/citizen-science-best-practice-guide

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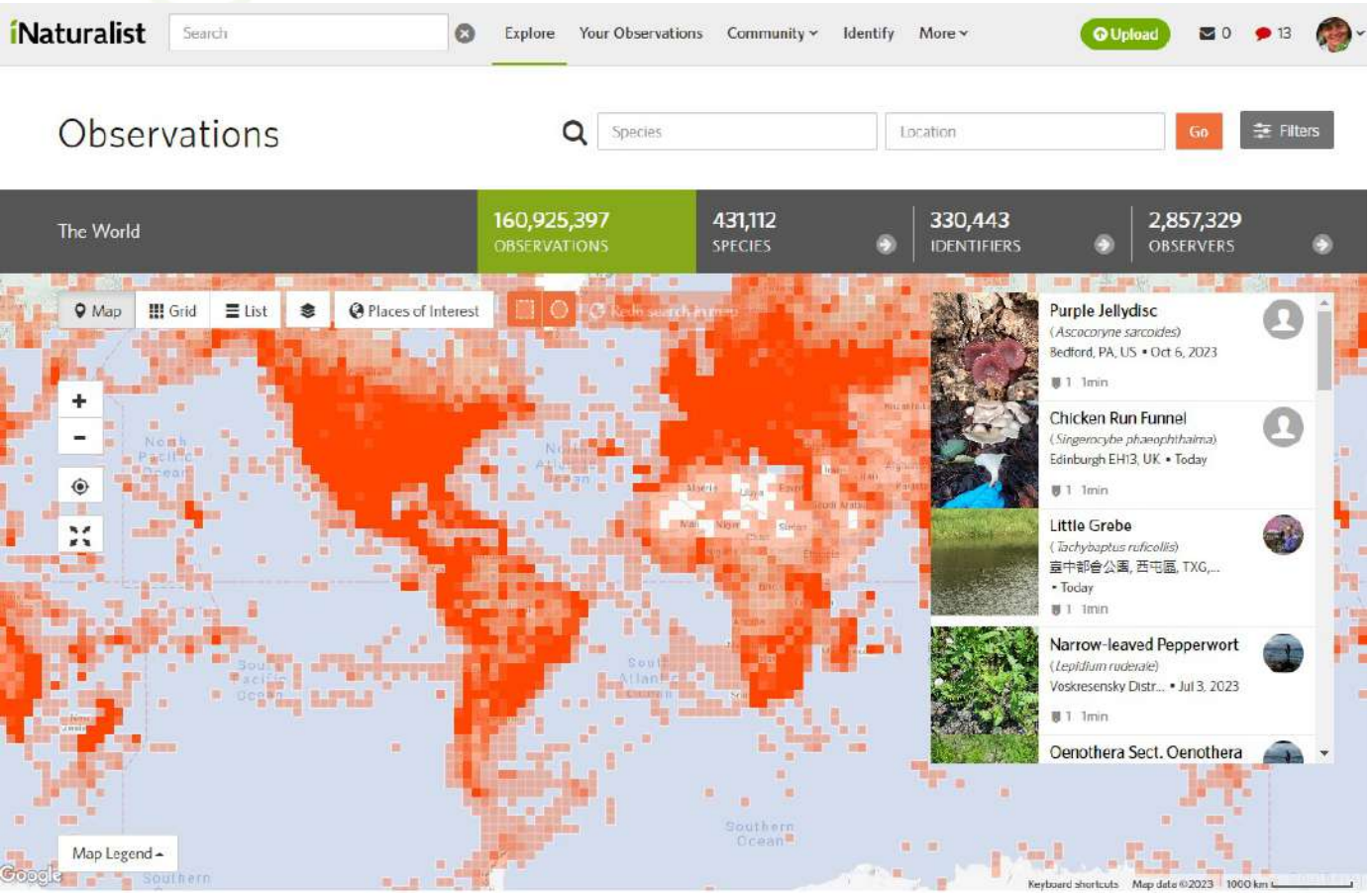
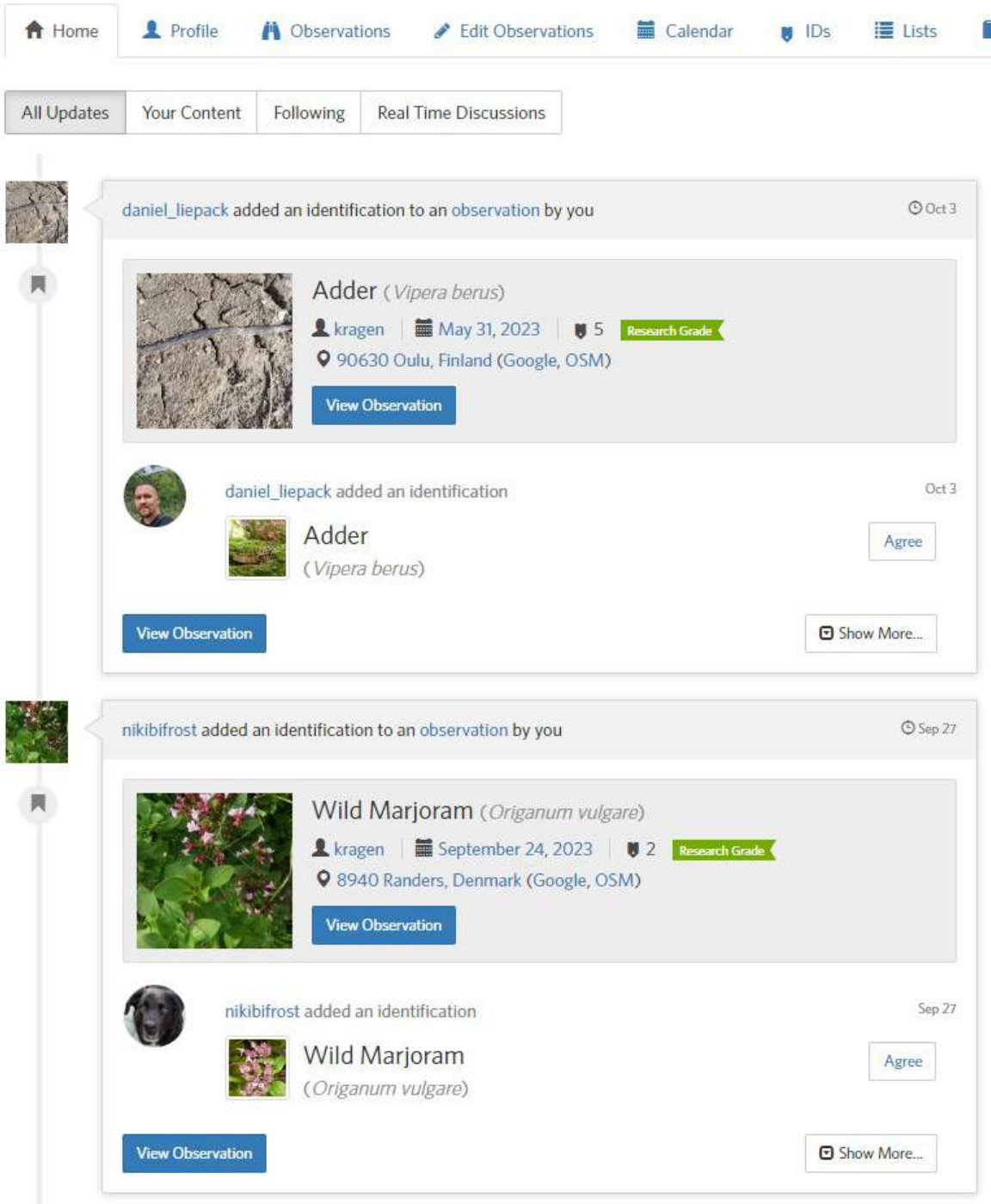
TIME4CS iNaturalist





- Computer Image Model: updated monthly
- September 2023: 78,387 taxa

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TIME4CS iNaturalist – City Nature Challenge

In 2022: 10% of all obs. from Luxembourg!

FRAMEWORK
capitalising on biodiversity

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | LIST

Ramborn CIDER CO.

Naturpark Mëllerdall Geopark

NORDECO
Nordic Agency for Development and Ecology

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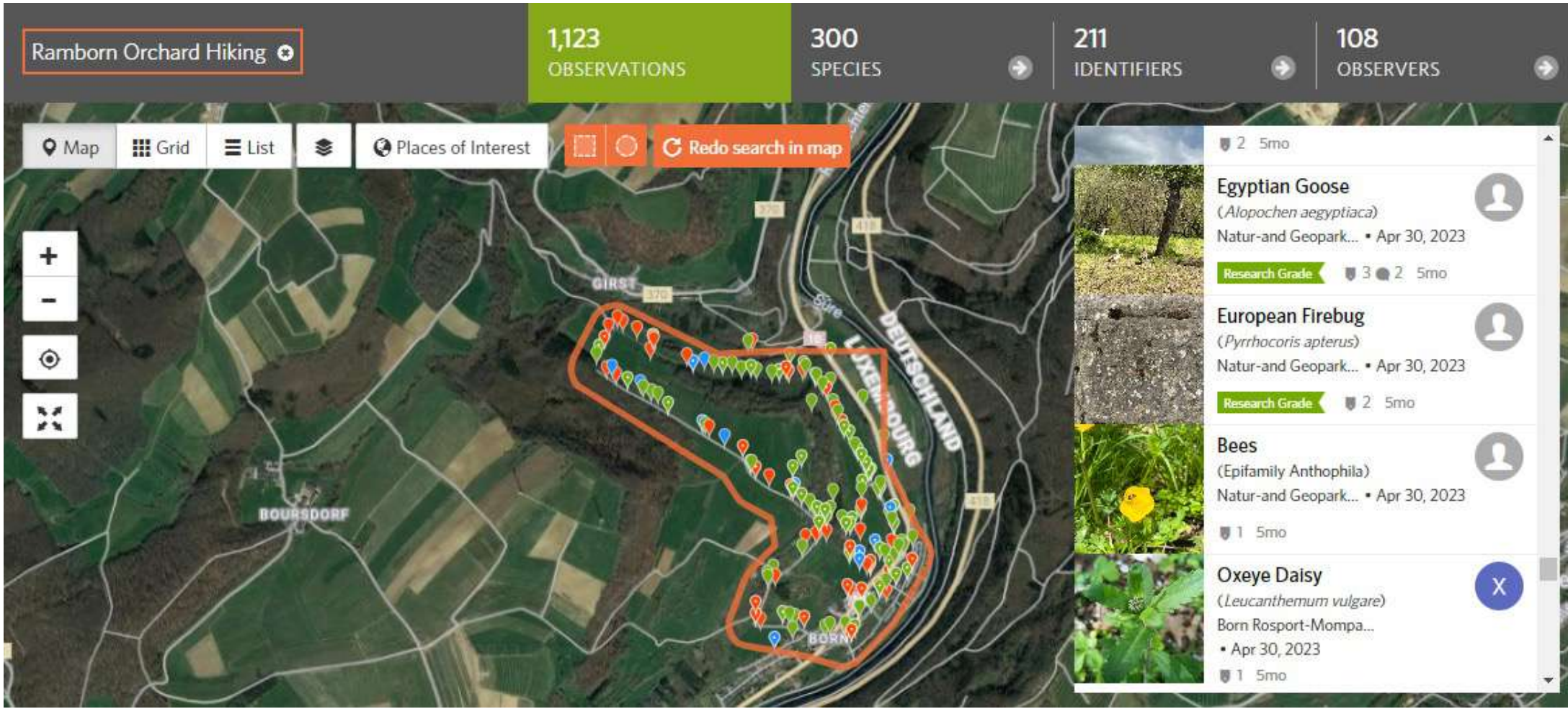
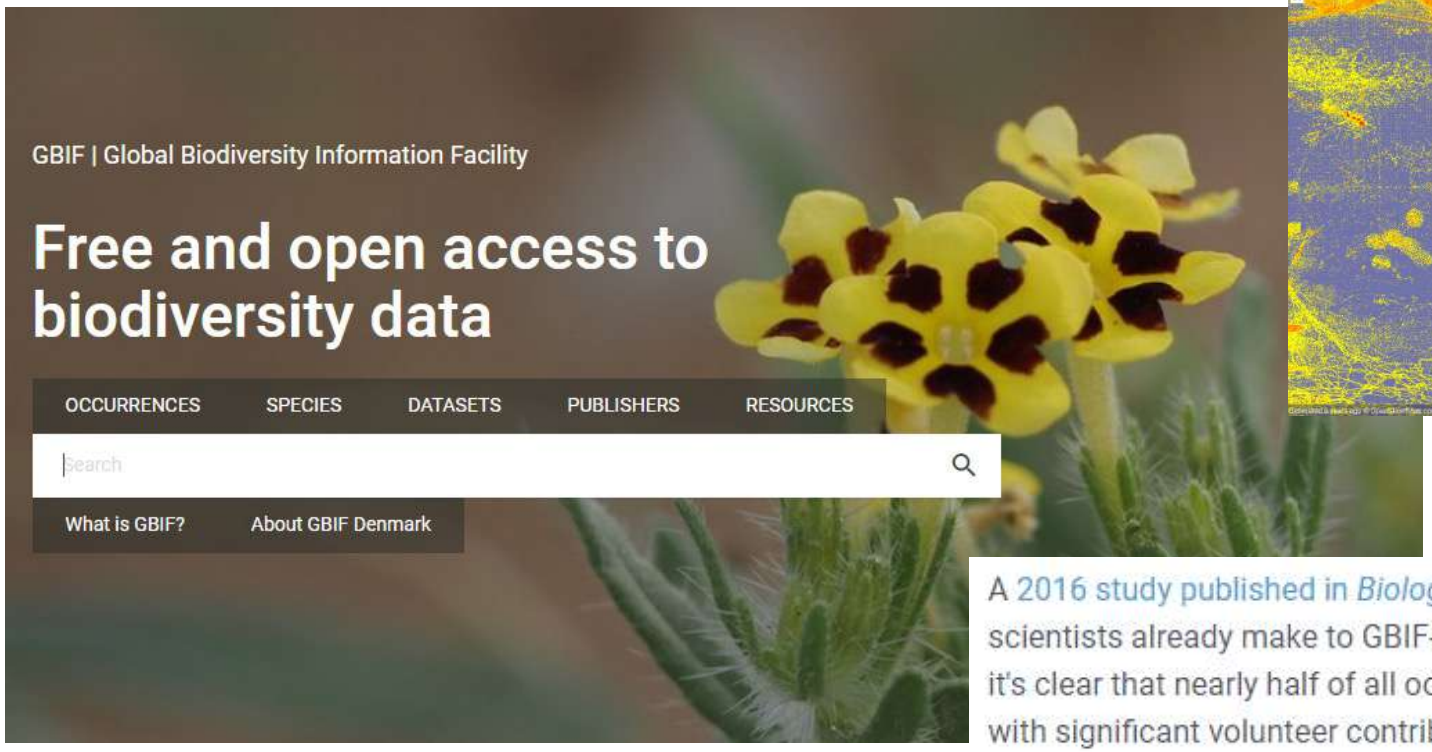
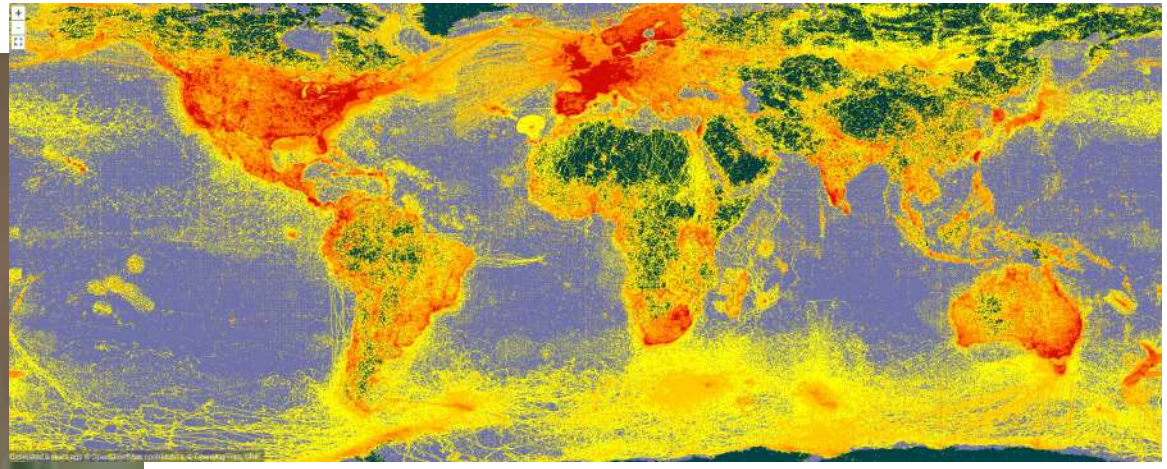


TIME4CS Crowdsourcing of research: Biodiversity monitoring





GBIF—the Global Biodiversity Information Facility—is an international network and data infrastructure funded by the world's governments and aimed at providing anyone, anywhere, open access to data about all types of life on Earth.

A 2016 study published in *Biological Conservation* registers the massive contributions that citizen scientists already make to GBIF-mediated data. Despite some limitations of the dataset-level analysis, it's clear that nearly half of all occurrence records shared through the GBIF network come from datasets with significant volunteer contributions.

The analysis also highlights the fact that biodiversity data from citizen scientists, like biodiversity data generally, are distributed unevenly across geography and taxa. Identifying data gaps and biases could help guide citizen programmes to focus on poorly sampled regions, like Africa, Asia and Latin America, and underrepresented organisms, like insects and fungi.

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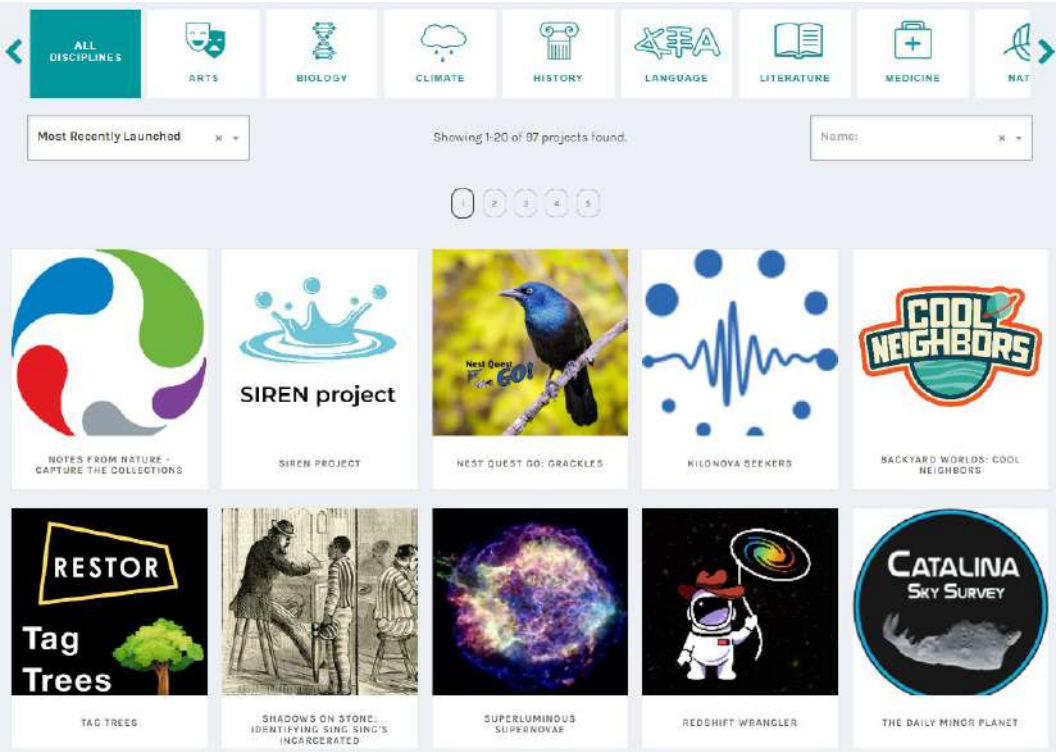
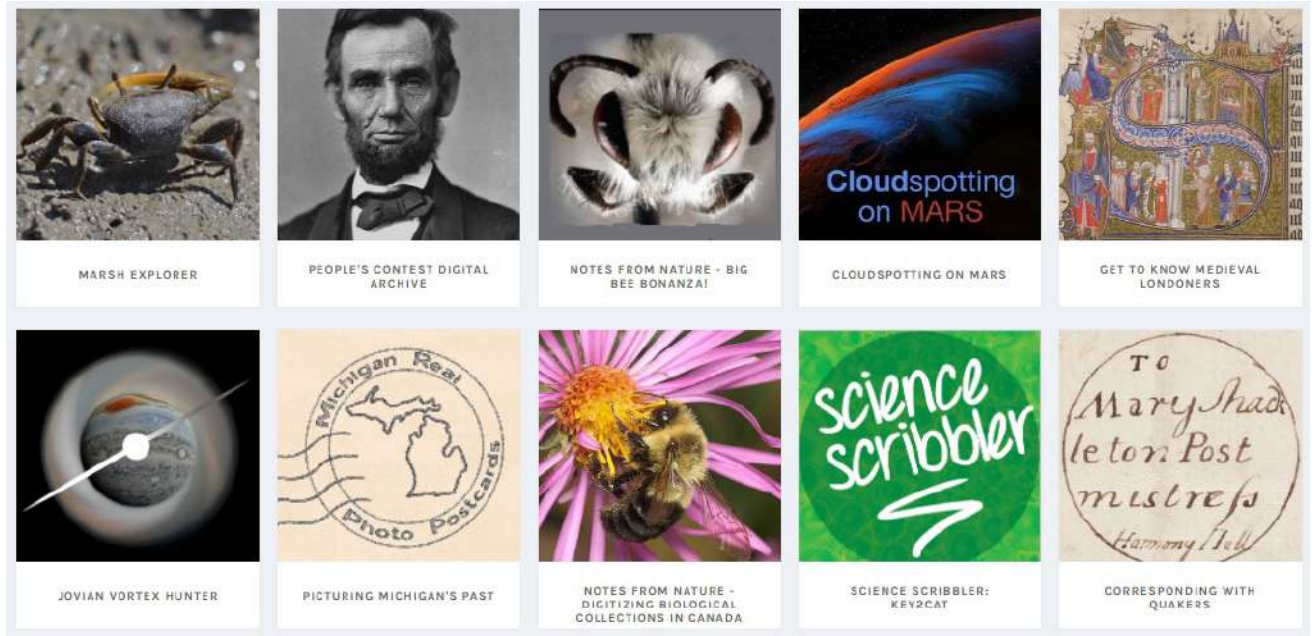
TIME4CS Zooniverse.org

THE ZOONIVERSE WORKS

771,523,814

CLASSIFICATIONS SO FAR BY
2,654,785 REGISTERED VOLUNTEERS





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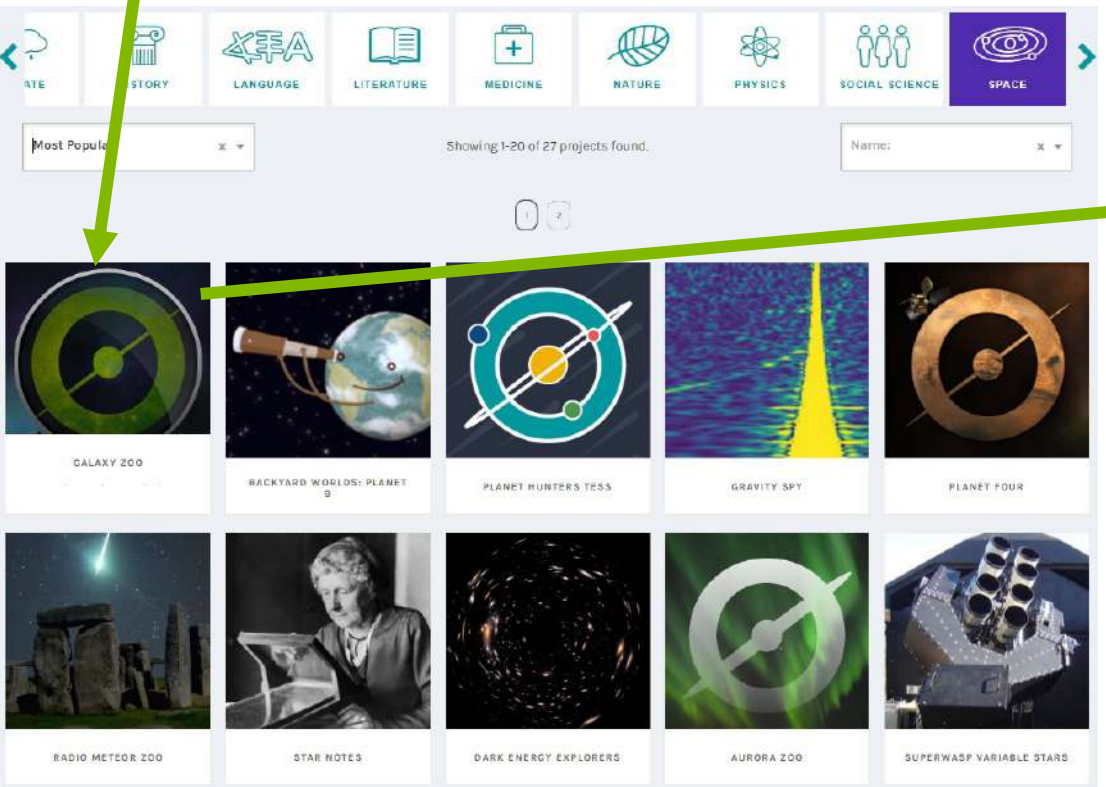
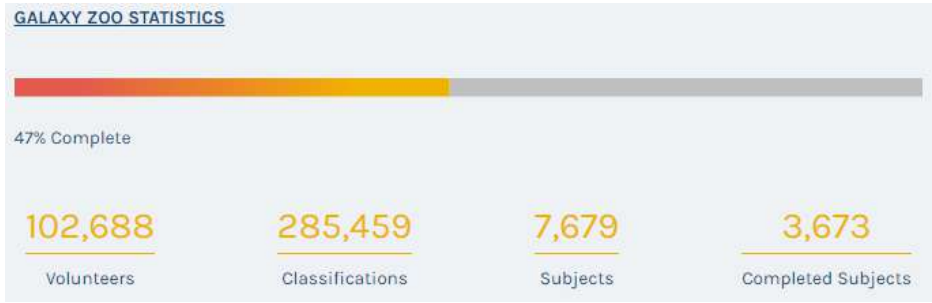
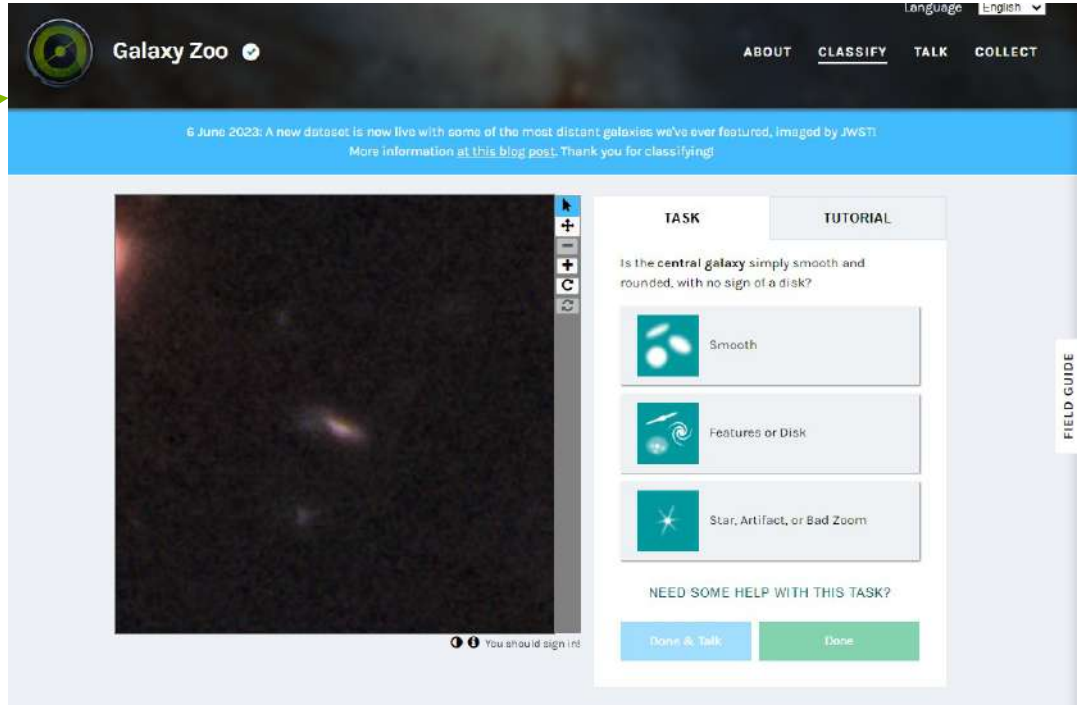


AI identify challenging galaxies ->

Volunteers identify galaxies ->

AI trained on classifications





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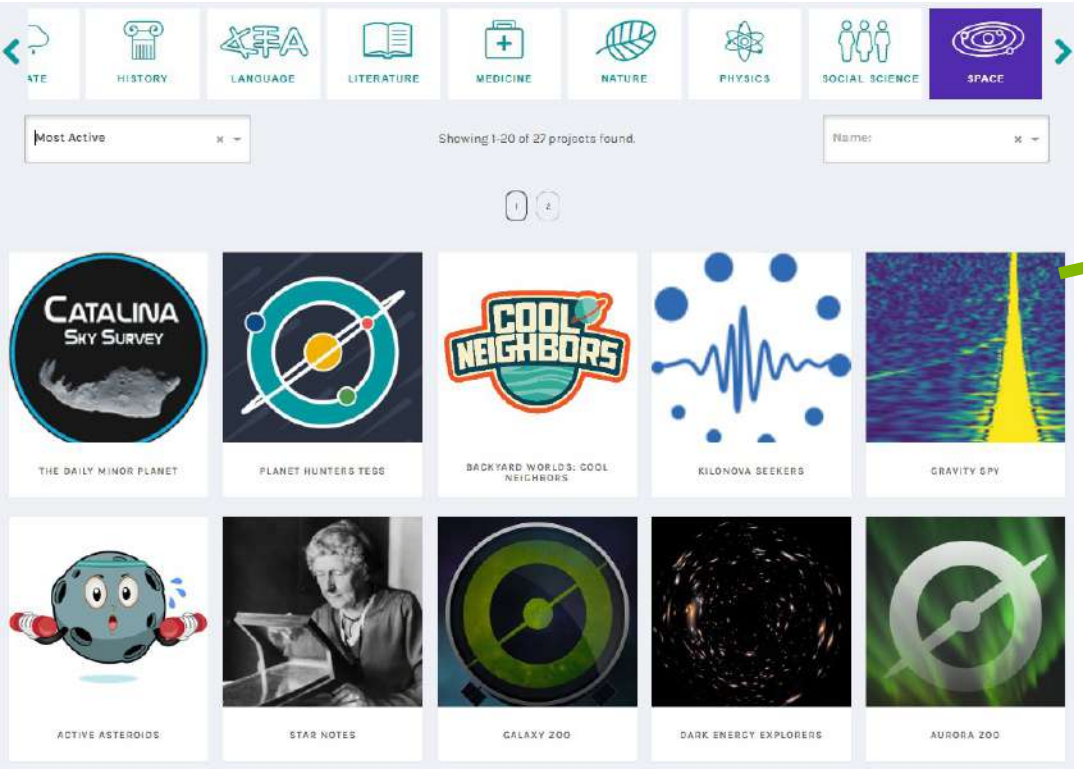
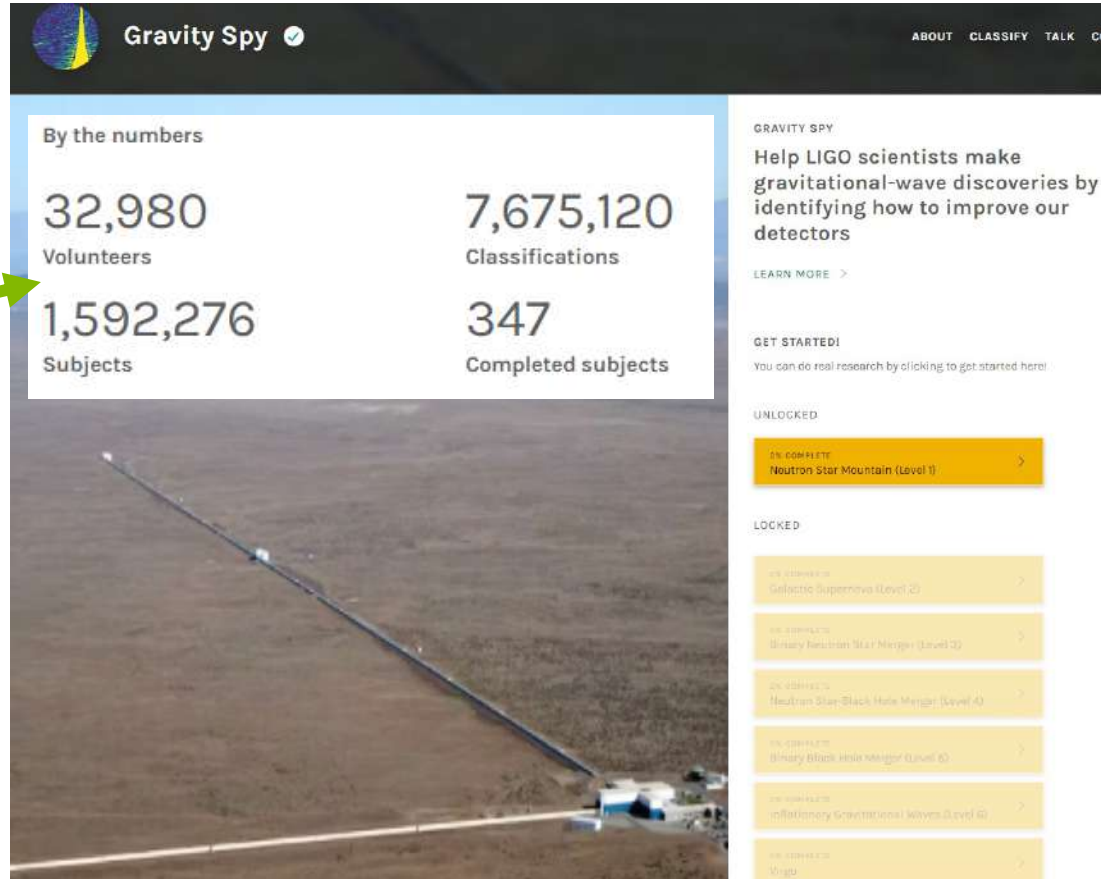


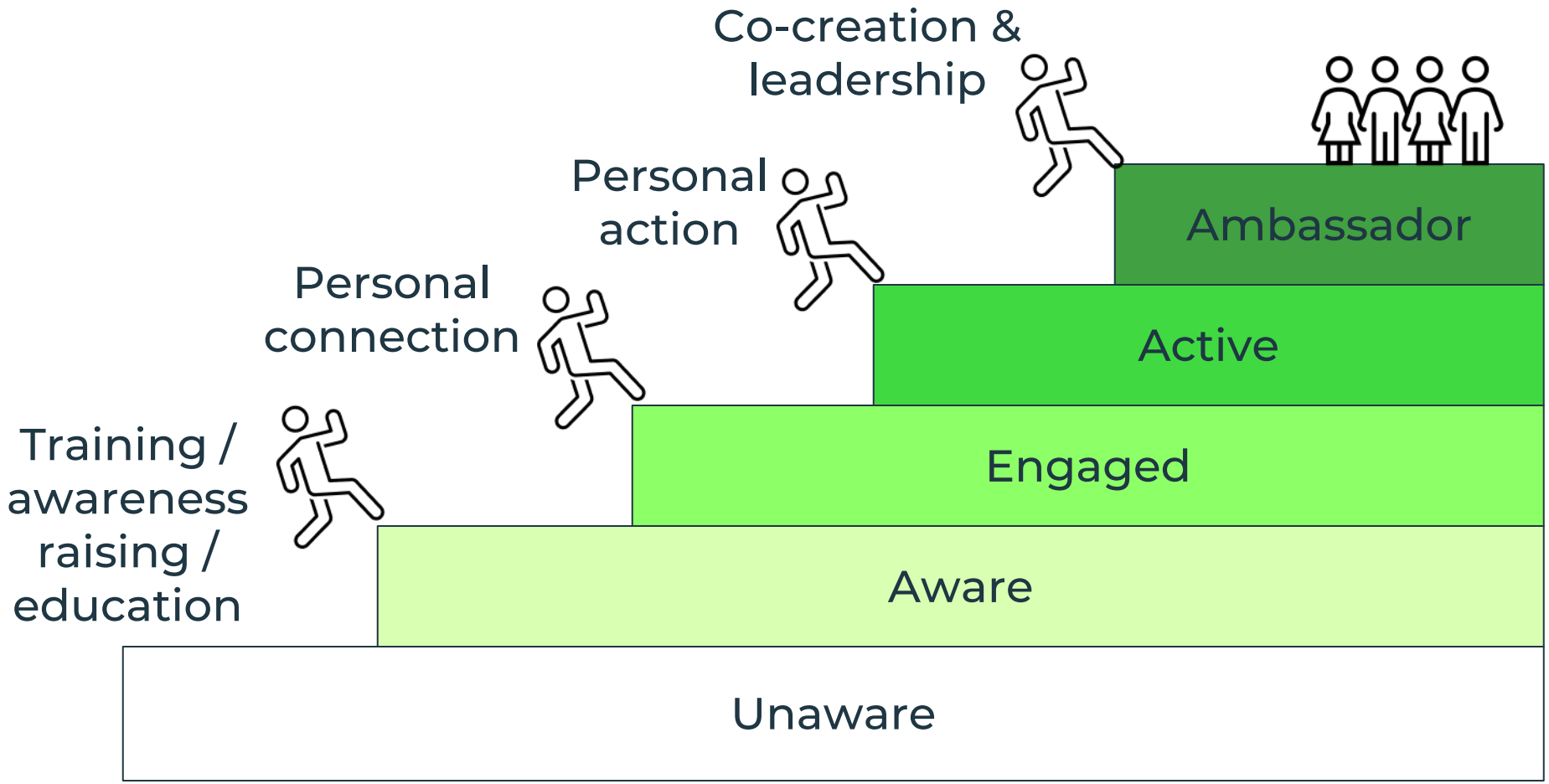
AI used to train volunteers

54% -> 90% accuracy

Increased volunteer retention



TIME4CS Ladder of Participation



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www.time4cs.eu

time4cs@apre.it

#TIME4CS

Thank you for your attention !

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Any questions?

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