



## HANDS-ON WORKSHOP

# REVERSE ENGINEERING A CITIZEN SCIENCE PROJECT

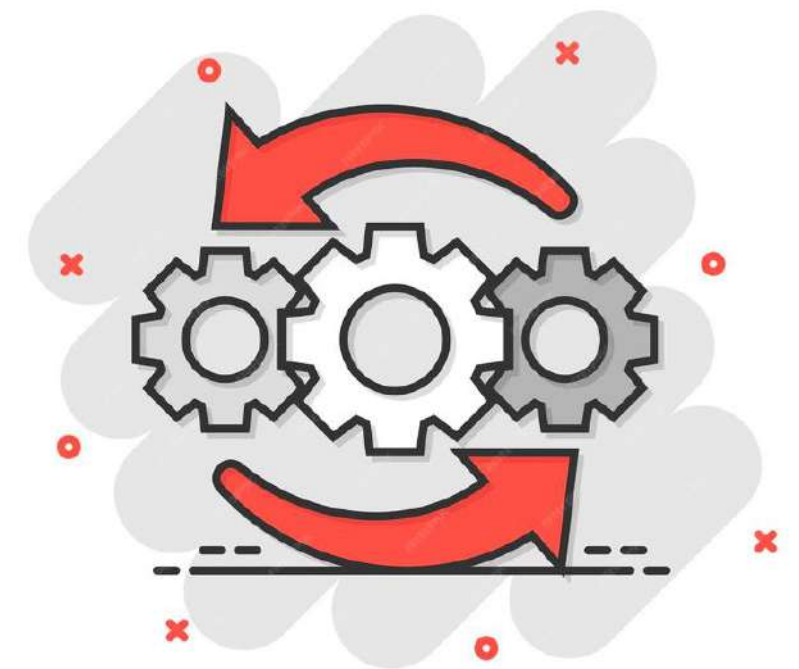
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Head of the Citizen Science Hub at VILNIUS TECH*



# What is reverse engineering?

Reverse engineering (aka design recovery, retrospective analysis, backward designing; system inversion) is the process of developing detailed design information from an existing part or product and an understanding of how it works.



# Objectives of the workshop

- To familiarize participants with the basic tenets of Citizen Science through the process of reverse engineering.
- Foster participants' abilities to identify potential challenges faced by citizen science projects and to understand the ethical considerations inherent to these projects.
- To inspire and prepare participants to conceptualize, plan, and implement their own citizen science projects by leveraging insights from existing projects.

# 10 principles of citizen science (ECSCA)

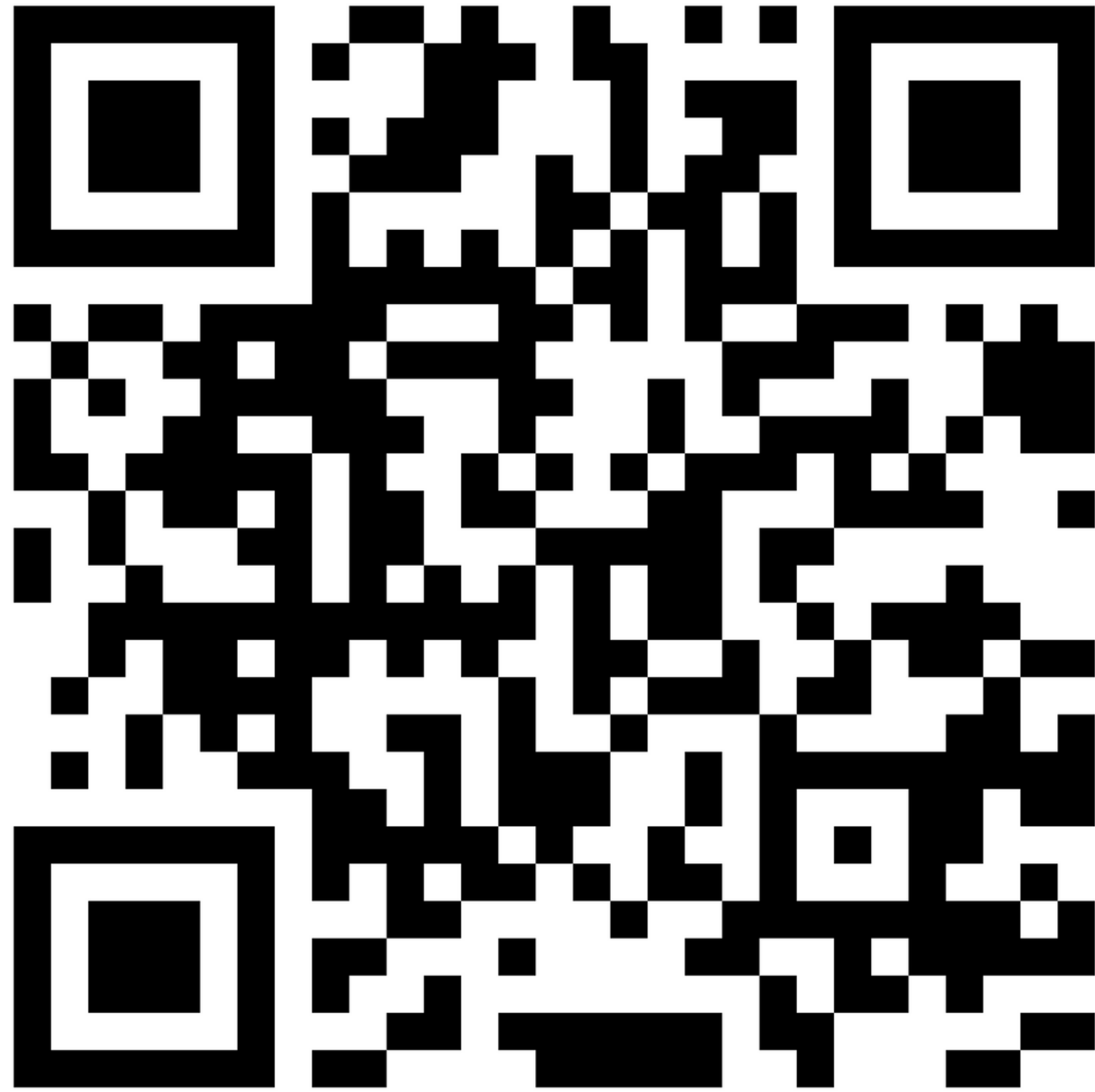
- **Clear Science & Aims:** Citizen science projects should have genuine science outcomes and, wherever possible, should be developed through co-design and evaluated using both scientific and participatory methodologies.
- **Meaningful Participation:** Citizen scientists should be involved in the process of scientific endeavor, contributing valuable effort in a way that helps them learn about science.
- **Diverse Participation:** Citizen science projects should aim to involve a broad range of people and seek to minimize barriers to participation.
- **Learning and Skills Development:** Citizen science should provide opportunities for deeper engagement, learning, skills building, and transformative education for participants.
- **Feedback Mechanism:** Projects should provide feedback to participants about how their data are used and what the scientific outcomes are.

# 10 principles of citizen science (ECISA)

- **Transparent Data Use & Open Science:** Data and metadata used in citizen science should be made publicly available and, where possible, results should be published in an open access format. Intellectual property should be addressed in a manner that recognizes the contributions of all and enables reuse by all involved.
- **Recognize Contributions:** The contributions of citizen scientists to a project should be recognized. This can be in the form of authorship, acknowledgment, or other appropriate methods.
- **Ethical Considerations:** Projects should aim to minimize risks to participants, ensure privacy, and attain informed consent. If the project is to be evaluated as part of a research process, it should gain ethics approval.
- **Evaluation:** Both the data and the societal or educational impact of projects should be evaluated. This provides a critical feedback loop for scientists and participants.
- **Sustainability and Legacy:** It's important to consider the sustainability of project outcomes and, where relevant, provide a legacy for project outputs to ensure long-term value.

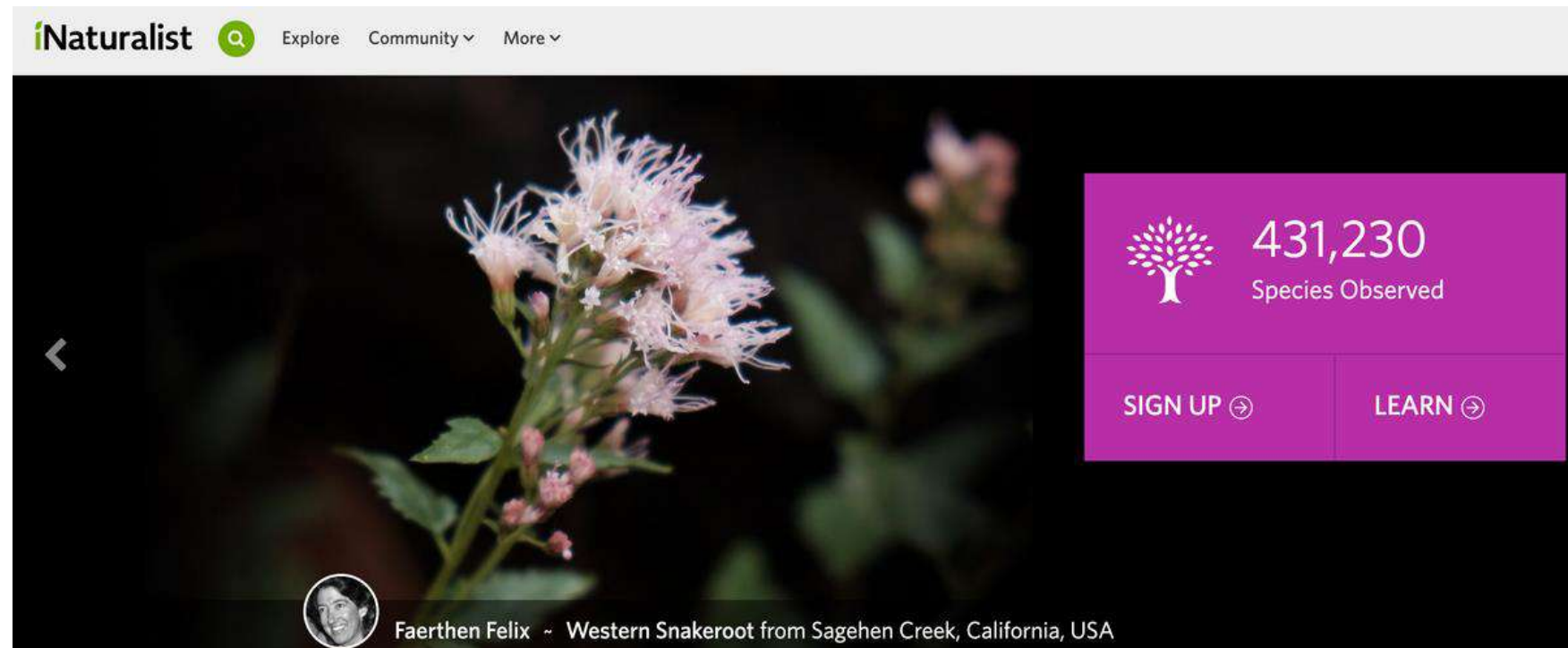
# Practical aspects

- **Forming the groups** (4-5 people per group) - 5min
- **Choosing the project** - 10min (few suggestions provided, free to explore SciStarter or eu-citizen.science project)
- **Analysis** of the project website, social media and other materials available online - 30min + **Trying out the platform** - 15min
- **Filling in the template** - 20min (scan QR code for accessing the workshop materials)
- **Presentation** - 5min per group (upload the presentation to Google Drive)
- **Discussion** - **discussing the outcomes of the workshop** > how to apply it mote in your research?



**Access the information through the QR code**

# Choosing the project





# Choosing the project



**ZOONIVERSE**

you can also browse yourself\*

\*takes a lot of time, the project might not be large scale or not function well

# Template

- Uploaded on Google drive (accessed through QR code)
- Each team should download the template and work on it (either online or offline)
- Upload the template after the work is finished or work collaboratively in a dedicated folder
- The template will be used for presenting the outcomes of the workshop



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## Key dimensions of the template:

- Introduction and objectives
- Experience with using the platform
- Model and protocol
- Engagement strategy and feedback
- Data quality and validation



# Finding info and using the platform

- Register and use the platform
- Try to capture some measurements, transcribe documents of complete other parts
- Analyze the social media activity of the project
- Look up information on the websites of institutions/universities leading the projects

# Presentations

Each group will do a presentation of 5-10 min presenting the findings after completing the findings