ARIA

Experts Feedback

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Antibiotic
Resistance
Inference
Array

Introduction

The following report summarizes the **feedback** provided by three academics from our mother institution, University Pompeu Fabra.

We want to acknowledge their contribution, since it has allowed us to develop a **broader view** of the points that needed to be **strengthened**, as well as the ones that were pioneer and powerful enough to be **boosted**.

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PILAR RIVERA

Background

Pilar Rivera is the head of UPF **Nanomedicine** Lab, whose main research lines reside in nanomedicine, nanotoxicity, biological and functional characterization of nanostructured materials and nanomaterials for intracellular ion sensing and microcapsules for controlled and remote release.

Strengthens

She firstly **congratulated** ARIA for the idea, since she found it particularly interesting to create a **portable** device to detect **mutations** related to antibiotic resistance.

Weaknesses and further improvements

The first thing that came to her mind was being **quantitative**. ARIA should not fail into providing many imprecise expressions since offering **numbers** and **metrics** is a better way to assess an idea.

Following this idea, the question of **how fast** is ARIA arised as a doubt to her as well, especially compared to other devices. Finally, ARIA would benefit if addressed an answer to the doubt of whether is it **handlebar** by non-professionals (no formation and experience is required).

Summary

By having prepared a short introduction or state of the art or at least, briefly **contextualised** the idea, ARIA may get better results when it comes to creating public concern and even be eligible for outer funding. This is good for professionals not related to the topic to understand why ARIA is doing this, but also for closely-related experts to be able to **position the concept within existing technologies**. In this regard ARIA must take into account **similar devices** and perform the comparison. Objectives, and sub-objectives are also relevant to be included.

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ROBERT CASTELO

Background

Robert Castelo is the head of IMIM-UPF **Functional Genomics** Group and of Research Programme on **Biomedical Informatics** (GRIB). Associate professor of Bioinformatics and Biostatistics at the UPF as well.

His main research line is based on narrowing the gap between sequence and function by developing computational tools to build network models of molecular regulatory mechanisms from high-throughput genetic and genomics data.

Strengthens

The **encryption** system of the data seems to be a good idea, but further development here needs to be done. He points out that plain email is actually **unsafe**. His experience with secured documents is that one receives by email a link that opens a website where it is needed to give one **credentials** to securely download a document. If the website is accessible through a https URL, then the communication with the website is encrypted in both directions.

Weaknesses and further improvements

One should not fall into the failure of using the term "artificial intelligence (**AI**)" as a **self-contained term** in a way that the reader or listener may be supposed to understand what it means. Therefore, every single time that ARIA describes AI, should go **further into detail**. Some examples where this nuancé is perceptible are:

- *"Alpha is a research AI that is capable"*
- *"Omega is born as an AI that can understand"*
- *"The Alpha AI"*

Nowadays, "AI" is a term often used to mean *"to do something smart and cutting edge"* and that may be ARIA's intention as well, but the **lack of detail** may create in the audience an impression that ARIA actually does not know what is doing. This needs to be softly curated.

Summary

In order to arrive to a further understanding from our approach, ARIA should construct a **paper-format** report of the approach, being coherent with scientific language and not being superficial when it comes to explaining laboratory or computational issues.

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ANDREAS MEYERHANS

Background

Andreas Meyerhans is the head of UPF **Biology of the Infection** Lab. His main research lines are focused on virus evolution and lymphocyte responses in persistent human infections (HIV, HCV, CMV and Mycobacterium tuberculosis).

Strengthens

Pioneer proposal, way of implementation.

Weaknesses and further improvements

There is an imperious need to avoid diluted and superficial expressions when telling the pipeline of ARIA. Goals, techniques and objectives need to be extremely clear to any reader.

Summary

The project approach was interesting and appealing. However, further efforts will need to be placed on the summary of the project if the team wants to scale it to something bigger.