

## I. Individual information for winner announcement

*Please provide your preferred information for use in announcing the winners of the competition. If you are on a team, please copy this section as needed and complete it for each team member.*

### Team member 1

- Name: Kelly Ramos Pereira
- Hometown: Porto Alegre - Rio Grande do Sul, Brazil
- A recent picture of yourself or digital avatar (feel free to attach separately):
- Social handle or URL (optional): <https://www.linkedin.com/in/kellyramos/>
- Who you are (mini-bio) and what you do professionally:

I'm 19 years old, passionate about animals, innovation, and design. I'm an animal rights advocate, running a non-profit organization to rescue stray animals. I'm currently taking a gap year and applying to universities in the USA. I also work as a project manager and UI/UX designer for an international company.

### Team member 2

- Marília Rangel Fernandes
- Hometown: Parnamirim - Rio Grande do Norte, Brazil
- A recent picture of yourself or digital avatar (feel free to attach separately):
- Social handle or URL (optional):
- Who you are (mini-bio) and what you do professionally:

I am 19 years old and a writer, who writes books and poetries (not published) and I really like to observe nature and have the feeling that every part of it is important in its own way. Right now, I'm in the third semester studying biology and education at the Federal University of Rio Grande do Norte (UFRN), and participate in the Institutional Scholarship Program for Initiation to Teaching (PIBID).

### Team member 3

- Name: Wesley Moreira Andrade
- Hometown: Guaratinga - Bahia, Brazil
- A recent picture of yourself or digital avatar (feel free to attach separately):
- Social handle or URL (optional): [https://www.instagram.com/wesley\\_andradez/?next=%2F](https://www.instagram.com/wesley_andradez/?next=%2F)
- Who you are (mini-bio) and what you do professionally:

I'm 19 years old, and my burning passion is to defend environmental causes and make tangible changes in my community. Professionally, I graduated from a technical environmental course at the Federal Institute of Bahia (IFBA). I am currently taking a gap year to apply to universities in the USA to study biology. In addition, I am working as an English teacher for elementary school at an Adventist school.

### Team member 4

- Name: Ruan Vitor Cordeiro da Silva
- Hometown: São Pedro - Rio Grande do Norte, Brazil
- A recent picture of yourself or digital avatar (feel free to attach separately):
- Social handle or URL (optional): <https://www.linkedin.com/in/ruan-cordeiro22/>

- Who you are (mini-bio) and what you do professionally:

I'm 19 years old, who loves coding, reading, and trying to do new things. I graduated from the Federal Institute of Rio Grande do Norte, and I'm studying hard to become a data scientist or engineer at a big tech. Also, this year I plan to apply to universities in the USA to study computer science or data science.

## II. Team submission write-up

*The below will provide useful additional context to both the challenge organizers and the broader DrivenData challenge community. Information included in this section may be shared publicly along with challenge results. You can respond to these questions in an e-mail or as an attached file. Please number your responses.*

### 1. What motivated you to compete in this challenge?

Our motivation for participating in this challenge stems from our shared passion for both nature and innovation. When we learned about the opportunity to combine these passions in a single challenge, it felt like a perfect fit for our team. The topic of microplastic concentration particularly resonated with us because it's an issue that isn't as widely understood as it should be. Despite its significant impact on our environment, many people remain unaware of the extent of this pollution and its direct effects on their lives. Our main motivation is to draw attention and provide information, so that more research can be invested in, especially through satellite technology. In this way, we can help build social and technological projects to help with this crucial issue.

### 2. High level summary of your approach: what did you do and why?

Our team's initial step involved convening an online meeting to articulate the challenge's goals, rules, and required documents. Once these were clarified, we deliberated on potential issues to address. Following collaborative research, we unanimously agreed that the theme of microplastic concentration was the most compelling issue to address. This choice drove us into the execution phase, where we began by researching satellites and datasets relevant to microplastics, exploring ongoing research at universities, and considering tools for effective data visualization.

Using the CYGNSS L3 Ocean Microplastic Concentration V1.0 dataset, and Python code, we conducted detailed analysis and crafted a data visualization. This visualization was then translated into a user-friendly dashboard using Figma, aimed at disseminating crucial information about microplastic pollution to Brazilian communities.

*Through the data collected by the satellite, we could incorporate our detailed report with an analysis of graphics and possible patterns and, with that, introduce the importance of the microplastic theme. During the detailed report composition, we meticulously incorporated each team member's experience and leveraged comprehensive research on the subject. This inclusive approach enriched our exploration of the problem and the development of viable solutions.*

**3. Did you use any tools for visualization, data preparation, or exploratory data analysis that aren't listed in your submission?**

No, most of the data analysis we did was using the Python libraries that we mentioned in the submission file. However, we are studying ways that we could exchange the precision of our data analysis, and tools we could use to achieve this objective.

**4. What are some other things you tried that didn't necessarily make it into the final workflow (quick overview)?**

In our initial planning stages, we explored the possibility of conducting a broader analysis encompassing all Latin American countries. However, we ultimately decided on a more focused regional approach, which allowed us to delve deeper into the specific impacts of microplastics on the populations in each team member's respective regions.

Another aspect we considered was researching the impacts of microplastics on Amazon rivers, which are affected by pollution originating from the seas. However, due to constraints such as limited page count, we prioritized discussing the impacts on coastal regions in our final workflow.

**5. If you were to continue working on this problem for the next year, what methods or techniques might you try in order to build on your work so far?**

Next year, we intend to improve our work in addressing the gap in microplastics concentration data, which arose due to the lack of new satellite data since 2019. Our strategy involves advocating for the continuity of satellite data collection, seeking collaborations with NASA to better understand the collection methodology and identify potential obstacles.

Additionally, our plan extends to establishing collaborations with Brazilian and foreign universities. As one of our team members knows some environmental departments at UFRN, and other team members plan to study abroad, we believe this will be possible in the near future. These collaborations can enrich our approach and provide access to new resources and knowledge.

We also aim to engage educators and government bodies, seeking partnerships that encourage joint initiatives and project development in the field of microplastics. We believe that this collaborative approach is essential to expanding the impact of our work and influencing public policies related to environmental preservation.

As we move forward, we will also explore advanced analytical techniques for a better understanding of existing data, as well as consider the development of predictive models and the use of alternative monitoring technologies.

These integrated strategies will allow us to address the challenges arising from the lack of new satellite data and continue advancing our mission to combat microplastic pollution.

**6. Have any of your team members previously participated in a program funded by the U.S. government? If so, which program?**

Yes, all team members participated in the 2023 edition of the Youth Ambassadors Program Brazil.