

When data is changing the world, how do you change the world with data?

EY Open Science Data Challenge 2023

EY

Building a better working world

The better the question. The better the answer.  
The better the world works.



Microsoft

## EY Open Science Data Challenge

Don't just predict the future. Build a better one.

A unique learning experience for students that makes science more accessible, provides an opportunity to build new skills, and contributes to a more sustainable future.



### 2023 topic

Today, more than 820 million people regularly go to bed hungry. The UN Food and Agriculture Organization (FAO) predicts that the agriculture industry will need to produce 70% more food while only being able to use 5% more land in order to nourish those already suffering from hunger, as well as two billion people expected to be added to the global population by 2050.

The impact of climate change on food security is likely to increase. We will continue to experience increasing temperatures, changing precipitation patterns, greater frequency of extreme events and rising sea levels.

A sustainable future depends on being able to produce enough nutritious food for the world's population.

### The impact

The winning outputs will be used by scientists, NGOs and governments to help feed the world. The models will be able to help farmers, communities, or even an entire country to better plan and adapt food production in a changing climate.

The outputs will be made freely available for non-commercial purposes.



## 2022 Challenge highlights

- ▶ More than 9,000 people registered from 101 countries and 1,800 universities
- ▶ Participants used satellite imagery provided by NASA, and data from the scientific community to build models to locate biodiversity – specifically frogs, as monitoring frog populations can help measure the overall health of an ecosystem
- ▶ Beneficiaries include the UN Environment Programme – World Conservation Monitoring Centre and the International Union for Conservation of Nature's Red List

## The challenge

The scale of the problem is global. But we must start by understanding a single crop at a single location. The results can then be extrapolated to other locations and even other crops.

Rice is a staple food for four billion people, more than half of the world's population. It is the livelihood for a fifth of the global population.

But both the amount of land available for rice and the yield growth rates are in decline. Between 2010 and 2050, irrigated rice yields in developing countries are forecast to decrease by 15% due to climate change.

Vietnam is also one of the most vulnerable countries to climate change. Initial calculations from the World Bank suggest that Vietnam lost \$10 billion in 2020, or 3.2% of GDP, to climate change impacts. There is a host of data available that can help the people of Vietnam better plan and adapt rice production in a changing climate. But that data must be properly analyzed and synthesized.

Participants will use data from Microsoft's Planetary Computer including Sentinel-1 (radar) and Sentinel-2 (optical) satellite data to:

**Level 1:** Identify the areas where rice is cultivated.

**Level 2:** For any identified area of rice cultivation, forecast yield.

Participants will build skills in understanding and interpreting radar and optical data, coding in Python using Jupyter notebooks and testing machine learning techniques including classification algorithms and prediction algorithms.

### Who can enter

Any university student or EY professional with an interest in data science can enter and participate. Professionals with less than two years of experience are also welcome to take part in the challenge.

Winners will be invited to a global awards event and take home cash prizes.

## Timelines

- ▶ January 2023 learning materials available
- ▶ 1 February 2023 Challenge opens
- ▶ 31 March 2023 Challenge closes
- ▶ June 2023 global winners announced

## Previous participants say

"I have been doing traditional programming for a while but had not done any meaningful data science like that."

"It's people like us that can actually change the world."

"Thank you for bringing us this opportunity to actually build a better working world."

"Offered a chance to learn new skills and contribute to a social cause."

"Getting hands-on experience with a challenging data science problem."

## What's in it for students

- ▶ Opportunity to learn new technical skills
- ▶ A chance to contribute to solving world hunger
- ▶ Access to the cutting-edge Microsoft Azure cloud platform
- ▶ Access to curated learning content to build skills in Python, Machine Learning, Image Processing, SQL and Deep Learning, among others
- ▶ Access to industry expert tutorials and training
- ▶ Opportunity to collaborate and network at a global level with peers, representatives from EY, Microsoft and collaborating organizations
- ▶ The chance to win prize money and participate in a global awards ceremony

## Benefits for universities

- ▶ An opportunity to uncover the best analytical minds
- ▶ Brings recognition to your university if your students perform well in the challenge
- ▶ Students can apply the skills they are learning in the classroom
- ▶ Learning opportunity for your students as they gain access to industry expert tutorials and training
- ▶ Participation in the data challenge could open additional career opportunities for your students

## EY | Building a better working world

EY exists to build a better working world, helping to create long-term value for clients, people and society and build trust in the capital markets.

Enabled by data and technology, diverse EY teams in over 150 countries provide trust through assurance and help clients grow, transform and operate.

Working across assurance, consulting, law, strategy, tax and transactions, EY teams ask better questions to find new answers for the complex issues facing our world today.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. Information about how EY collects and uses personal data and a description of the rights individuals have under data protection legislation are available via [ey.com/privacy](https://ey.com/privacy). EY member firms do not practice law where prohibited by local laws. For more information about our organization, please visit [ey.com](https://ey.com).

© 2022 EYGM Limited.  
All Rights Reserved.

EYG no. 000000-00GbI

BMC Agency  
GA 115920156

ED None

This material has been prepared for general informational purposes only and is not intended to be relied upon as accounting, tax, legal or other professional advice. Please refer to your advisors for specific advice.

[ey.com](https://ey.com)