

# **TinyML AI for Good Challenge**

# Agenda

- Intro to TinyML Foundation
- Intro to AI for Good
- Challenge overview
- Open discussion



**We see a new world with trillions of intelligent devices enabled by tinyML technologies that sense, analyze and autonomously act together to create a healthier and more sustainable environment for all**

# About us



tinyML Foundation is a non-profit organization\* with the mission to accelerate the growth of a prosperous and integrated Global Community of HW, SW and SYS scientists, engineers, designers, product and business application people developing leading edge energy efficient machine learning computing. The goal is to connect various technologies and innovations in this domain of machine intelligence to enormous product and business opportunities and value creation across the whole ecosystem.



\* tinyML Foundation is a non-profit, 501c3, organization registered in Los Altos, CA, USA

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# Climbing up the tinyML mountain





# tinyML meetups global growth

(9.2k members in 36 countries)

<https://www.meetup.com/pro/tinyml/>

## FOUNDATION



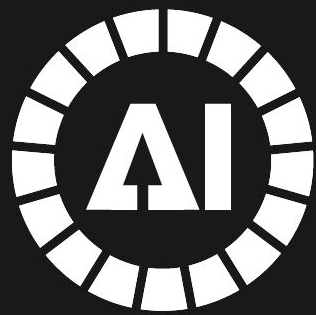
tinyML

Members  
9,209

Groups  
45

Countries  
36





# AI for Good

## Machine Learning in 5G Challenge

*Applying machine learning  
in communication networks*

[aiforgood.itu.int](http://aiforgood.itu.int)





- Students and professionals compete
- Expert talks (webinars)
- Round-tables
- Hands on sessions
- Mentorship
- Baseline models





## ITU AI/ML 5G Challenge Timeline

February - May 2022

Curation Phase

June - October 2022

Competition Phase

- Registration: ~ June
- Submission of solutions
  - 16 September
  - 21 October
- Evaluation of solutions: October 2022
- Final Ranking: 31 October 2022
- Preparation of reports: October - November 2022

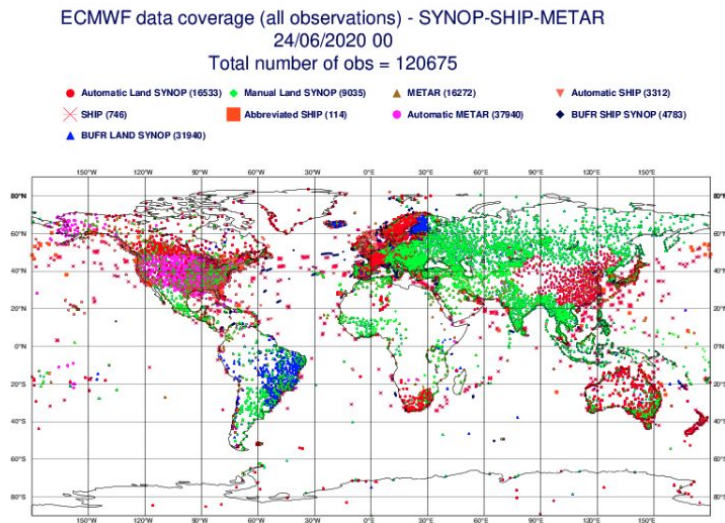
December 2022

Grand Challenge Finale (online)

- November 2022 - Judges Panel evaluates the best solutions from Competition Phase
- 29 Nov - 01 Dec 2022 - Best solutions pitch in a 3-day event end of to determine the finalists
- 13 December 2022 - Grand Challenge Finale

# TinyML Challenge

Developing Countries is the area of the globe where land-based, in situ monitoring of weather and climate is at its scarcest, but at the same time has arguably the most potential to benefit society



# TinyML Challenge

The goal of this challenge is to create a **low-cost, low-power, reliable, accurate, easy to install and maintain weather station**, with **no mechanical moving parts** for measuring all weather conditions with a focus on rain and wind measurement, **based on tinyML**, that can be deployed locally.

**Different prizes to be announced!**

# Process

1. Collect local rain and wind acoustic or other types of sensor measurements
2. Develop an ML model to derive rain and wind values from acoustic measurements of rain and wind (eg compare with a local weather station)
3. Use tinyML techniques to optimize the model for embedded devices
4. Deploy to an embedded device in the field
5. Optimize overall power consumption
6. Show model results of deployed solution
7. Employ means to show when rain/wind are detected and intensity levels

**Stretch goal: Integrate solution in a rugged working weather station**

**What use cases do you  
see for this?**

**Let's get started!**