

Workshop on Scientific Use of
Machine Learning on
Low-Power Devices:
Applications and Advanced
Topics

17 - 21 April 2023
An ICTP Virtual Meeting
Trieste, Italy



Further information:
<http://indico.ictp.it/event/10166/>
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Day 4: TinyML Show and Tell



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TinyML4D Show and Tell

What is a TinyML4D Show and Tell Talk?

Show and Tell Talks can include classroom projects, research projects, in-progress projects, failed projects – basically any kind of TinyML project! We are particularly interested in work that discuss:

- Scientific Applications of TinyML
- Applications of TinyML for the Global South and for Global Sustainability
- Aggregated “best practice” suggestions for getting up to speed on new TinyML projects
- Surprising discoveries gleaned from deploying TinyML into the real world
- Work from early career students and professionals

Recordings of Past Show and Tells

All Show and Tell Videos can be found at [this playlist](#).

Date	Topics	Video Link
March 30, 2023	<ol style="list-style-type: none">1. Automation of Coloring Process In Fashion Design Using Arduino Color Sensor by Fatmaliza Zaki Abdad, Syafiga Arinda of Sampoerna University, Indonesia2. Anomaly detection for faulty motor using the arduino board Nano 33 BLE sense by Hilal Al-Libawy of University of Babylon , Iraq3. First Time TinyML Experience by Edwin Marte of Universidad Tecnológica de Santiago, Dominican Republic4. Voice Activated LED Voice control Lighting by Muhammad Annas Zahid of Usman Institute of Technology University, Pakistan	Video
February 23, 2023	<ol style="list-style-type: none">1. Artificial Intelligence In Point-of-Care Medical Equipment by Hellen Cristina Ancelmo of Instituto Carlos Chagas & Universidade Tecnológica Federal do Paraná, Brazil2. Weep Scope: Recognizing the Unique Cries of Infants by Gohel Amit Chandrakantbhai of Gujarat Technological University, India3. Crops Disease Detection with TinyML by James Adeola of Université d'Abomey Calavi, Benin4. Implementation of Deep Learning on a Chick Counter by Muhammad Suzaki Zahran of Universitas Raharja, Indonesia5. Identification of Cashew Nut Diseases using TinyML by Dr. Bala Murugan MS of Vellore Institute of Technology, India	Video
January 26, 2023	<ol style="list-style-type: none">1. Personal Trainer by Ricardo Magno do Carmo Junior of Universidade Federal de Itajubá (UNIFEI), Brazil2. Irrigation prediction for crops using machine learning at the edge by Carlos Rodriguez of Pontificia Universidad Javeriana, Colombia3. EYE TO EYE: non-invasive anemia detector using machine learning by Kimberly Cristel Soto Concha of Universidad Peruana Cayetano Heredia4. Estimating the shelf life of date palm fruit using TinyML by Abdulrahman Fayeze of King Faisal University Saudi Arabia	Video
December 1, 2022	<ol style="list-style-type: none">1. Smart Switch Based on Embedded Machine Learning by Wong Khai Chiuang of Universiti Teknologi Malaysia2. Study of Animal Movement: Monitoring Using TinyML Kits by Laila Daniela Kazimierski, Karina Laneri of Centro Atómico Bariloche Argentina3. Human-Computer Interaction: Hand Gesture Recognition using Tiny Machine Learning by Koual Yidhir Agihles, Labchri Amayas, Bourzam Saad Allah, Baroud Yasmine, Bourbia Amine of USTHB University, Algeria4. Automated American Sign Language (ASL) using TinyML by Md Sharif Ahmed, Prabha Sundaravadevel of University of Texas at Tyler5. Smart Bee Keeping by Jackline Tum of Dedan Kimathi University of Technology	Video
October 27, 2022	<ol style="list-style-type: none">1. TinyML Based Self Diagnostic Kit for Respiratory Diseases by Samson Otieno Ooko of University of Rwanda2. The Impact of TinyML on an Assistive Technology Project In Brazil by Mateus Delangelica, Renato Masteguim of Universidade Federal de Itajubá (UNIFEI)3. Anomaly Detection in the Temperature of an AC Motor Using Embedded Machine Learning by Ezzeldin Ayman, Ibrahim Ismail of Universiti Teknologi Malaysia	Video

We will be sending out a call for future Show and Tell Talks Soon!

Thanks to Jeremy Ellis for Coordinating!

Today's Schedule

- 15:00 **Day Opening** 5'
- 15:05 **Selected Show and Tell Talks** 5'
Speaker: Brian PLANCHER (Barnard College, Columbia University, USA)
- 15:10 **Smart Poultry Farm: Tinyml-Based Disease Detection System Through Audio Signal** 20'
Speaker: Segun ADEBAYO (Bowen University, Nigeria)
- 15:30 **Leveraging TinyML for Tracking Eidolon Helvum Movement Pattern and Forage Technique** 20'
Speaker: Oluwatobi Halleluyah AWORINDE (Bowen University, Nigeria)
- 15:50 **Developing a "personal trainer" with TinyML** 20'
Speaker: Ricardo CARMO (Federal University of Itajubá, Brazil)
- 16:10 **Sleep Apnea Detection System Using** 20'
Speaker: Helen Neena GOVEAS (BITS Pilani, K K Birla Goa Campus, India)
- 16:30 **Rainfall estimation using Audio Monitoring and TinyML** 20'
Speaker: Blessed GUDA (Carnegie Mellon University, Nigeria)
- 16:50 **Development of a TinyML Framework for Crop Disease Classification Tasks on Constrained Embedded Devices** 20'
Speaker: Rehema Hamis MWAWADO (Sokoine University of Agriculture, Tanzania)
- 17:10 **Word recognition in Kichwa using audio and low-power devices: a machine learning approach for alert applications** 20'
Speaker: Karina ORTEGA AVILÉS (Escuela Superior Politécnica del Litoral, Ecuador)
- 17:30 **DTMF Demodulation: A Brief Investigation of Machine Learning for Digital Signal Process** 20'
Speaker: Umar Hadiza YUSUF (Carnegie Mellon University, Nigeria)
- 17:50 **Day Closing** 10'



**Top 3 Presentations
will receive support
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Interaction via Discord

If you have longer questions/ don't want to talk, please use the “**ictp-workshop**” Discord channel. Questions and answers in Discord will remain after the workshop (--> good reference!).

Please join Discord by following this link:

<https://discord.gg/zKWgwhSAEY> if you haven't already done so!

We will use **Zoom chat only for announcements.**



Discord