

Welcome to TinyML



Who Am I

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Harvard University



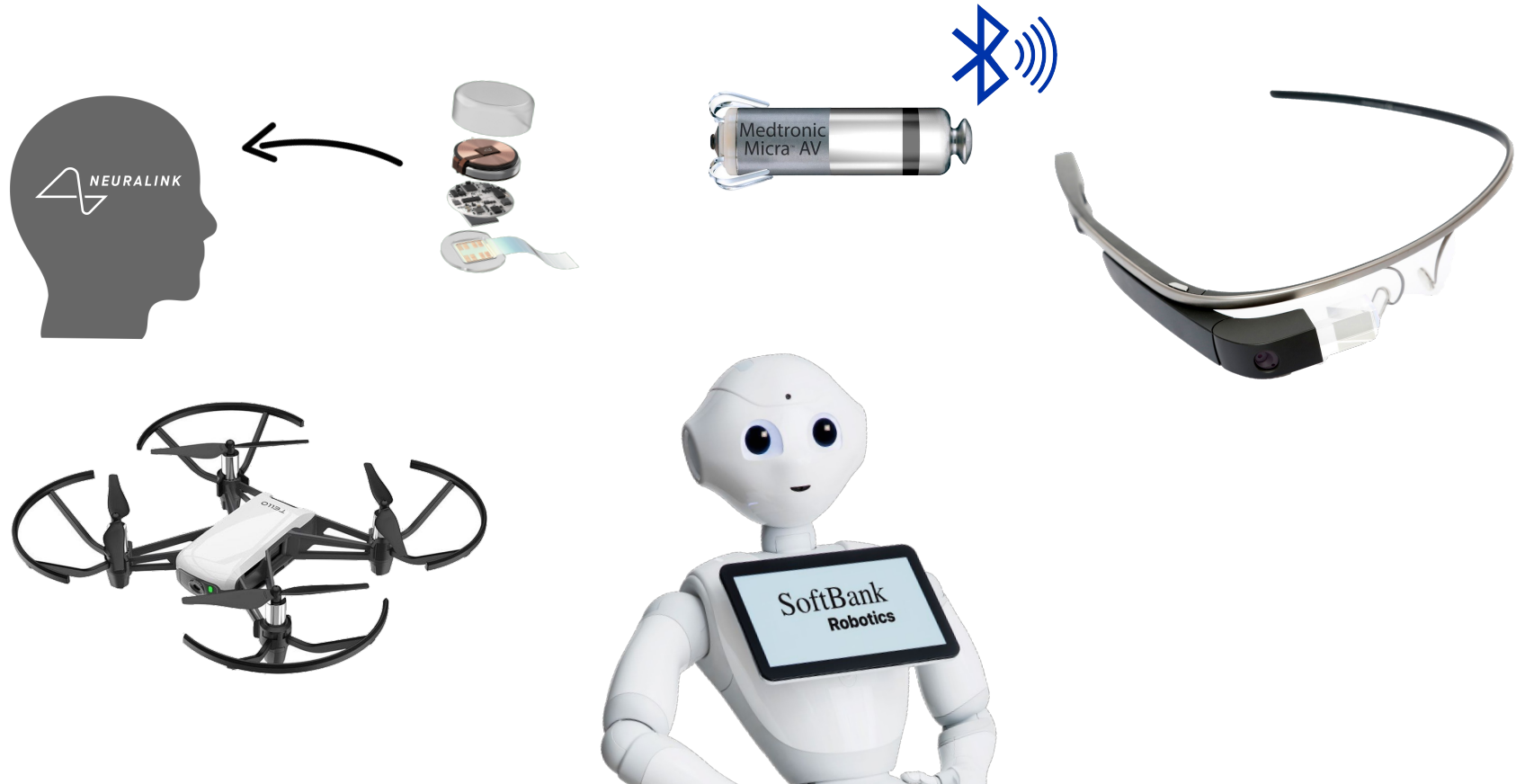
What is Tiny Machine Learning (TinyML)?

Tiny machine learning (TinyML) is a **fast-growing field of machine learning** technologies and applications including **algorithms, hardware, and software** capable of performing **on-device sensor data analytics at extremely low power consumption**, typically in the mW range and below, and hence enabling a variety of **always-on ML use-cases** on **battery-operated devices**.





More Forward Looking Applications



ElephantEdge

Building The World's Most Advanced **Wildlife Tracker**.



Source: <https://wildlabs.net/resources/competition/challenge-elephantedge>

ElephantEdge

Risk Monitoring

“Know when an elephant is moving into a high-risk area and send real-time notifications to park rangers.”

Conflict Monitoring

“Sense and alert when an elephant is heading into an area where farmers live.”

Activity Monitoring

“Classify the general behavior of the elephant, such as when it is drinking, eating, sleeping, etc.”

Communication Monitoring

“Listen for vocal communications between elephants via the onboard microphone.”

Course Sequence

Course 1

Fundamentals of TinyML



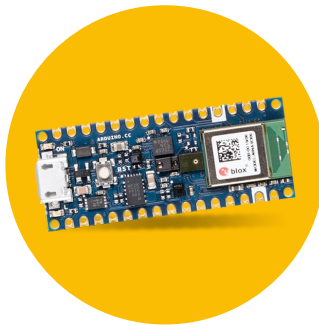
Course 2

Applications of TinyML



Course 3

Deploying TinyML



Learning

You will learn how to deploy models on a real microcontroller. Along the way you will explore the challenges unique to and amplified by TinyML (e.g., preprocessing, post-processing, dealing with resource constraints).

Course Instructors

Course 1 & 2

Fundamentals of TinyML



Laurence Moroney
Lead AI Advocate
Google

Course 1, 2 & 3

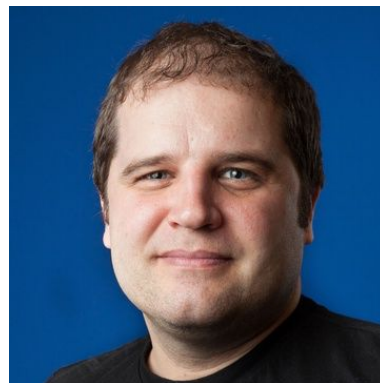
Fundamentals of TinyML
Applications of TinyML
Deploying TinyML



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Associate Professor
Harvard University

Course 2 & 3

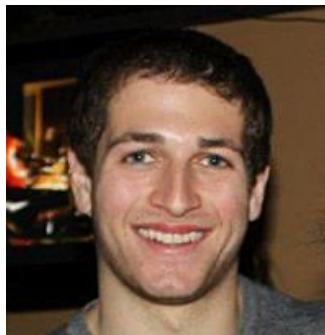
Deploying TinyML



Pete Warden
Technical lead of TensorFlow
Mobile and Embedded, Google

Behind the Scenes

Teaching Assistants



Brian Plancher
Harvard University



Dhilan Ramaprasad
Harvard University

Additional support from



Massimo Banzi
Dominic Pajak



Josh Gordon
TensorFlow Micro team



Colby Banbury
Benjamin Brown
Susan Kennedy
Srivatsan Krishnan
Mark Mazumder
Evan Smith

Special Guests from Industry & Academia

“ The future of ML is *tiny*
and bright. We’re excited
to see what you do! ”

Course Instructors

Vijay Janapa Reddi, Harvard University

Laurence Moroney, Google AI

Pete Warden, Google

Course Overview

