Welcome to TinyML Applications (Course 2)

What is Tiny Machine Learning (**TinyML**)?

- Fast-growing field of **machine learning**
- Algorithms, **hardware, and software**
- **On-device** sensor data analytics
- Extreme **low power** consumption
- **Always-on ML** use-cases
- **Battery**-operated devices

Course Sequence

Course 1

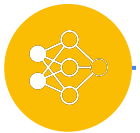
Fundamentals of TinyML

Course 2

Applications of TinyML

Course 3

Deploying TinyML



Learning

An introduction to Machine Learning (ML) with TensorFlow using the Colab programming environment. You will gain an understanding of how to design, develop, and use ML applications through the lens of Tiny Machine Learning.

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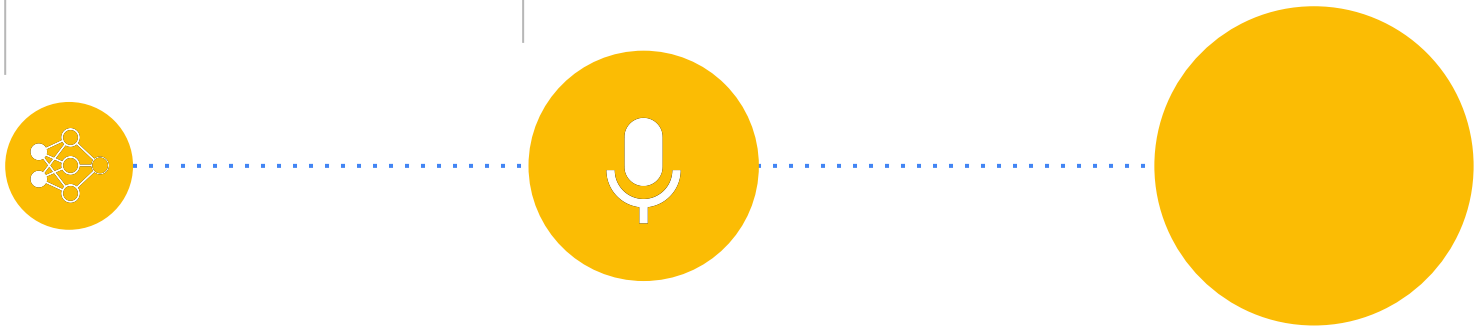

Learning

An introduction to a variety of TinyML applications and sensor types, along with a deep dive into how to build some of them (e.g., speech commands). You will learn the importance of dataset engineering and responsible AI methods.


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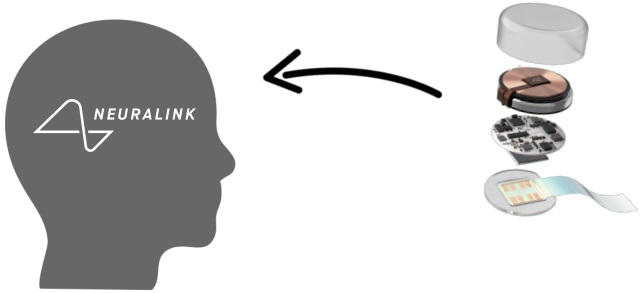
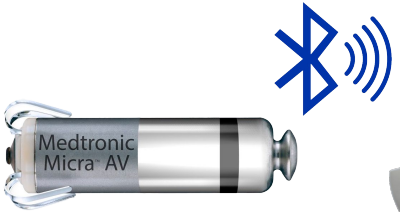
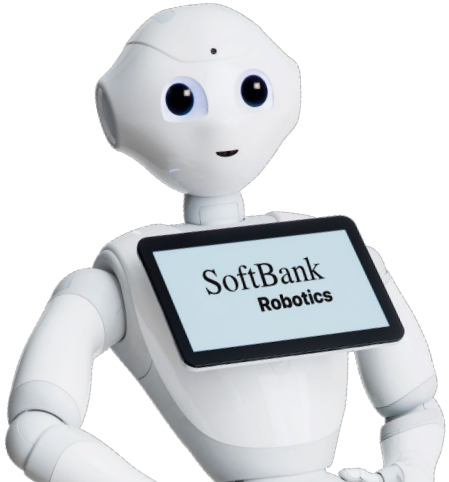
More Forward Looking Applications







Endpoints Have **Sensors**, Tons of Sensors

Motion Sensors
Gyroscope, Radar, Accelerometer

Acoustic Sensors
Ultrasonic, Microphones, Geophones, Vibrometers

Environmental Sensors
Temperature, Humidity, Pressure, IR, etc.

Touchscreen Sensors
Capacitive, IR

Image Sensors
Thermal, Image

Biometric Sensors
Fingerprint, Heart rate, etc.

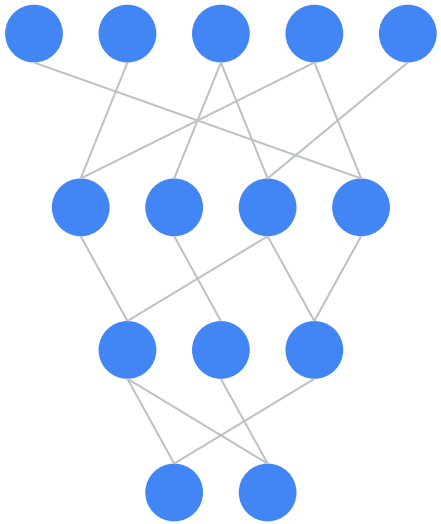
Force Sensors
Pressure, Strain

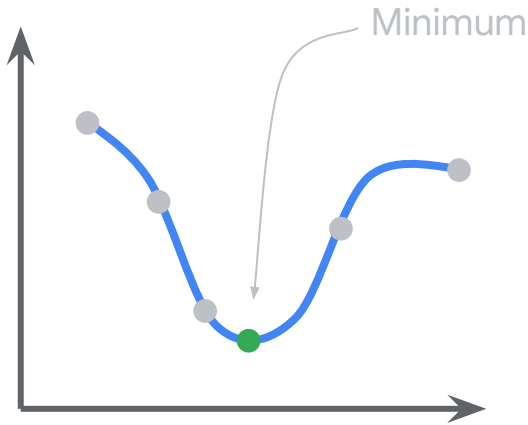
Rotation Sensors
Encoders

Acoustic Sensors
Ultrasonic, **Microphones**, Geophones, Vibrometers

Image Sensors
Thermal, **Image**

Motion Sensors
Gyroscope, Radar, **Accelerometer**





Course 2: End-to-end **TinyML** application design