



Embedded AI

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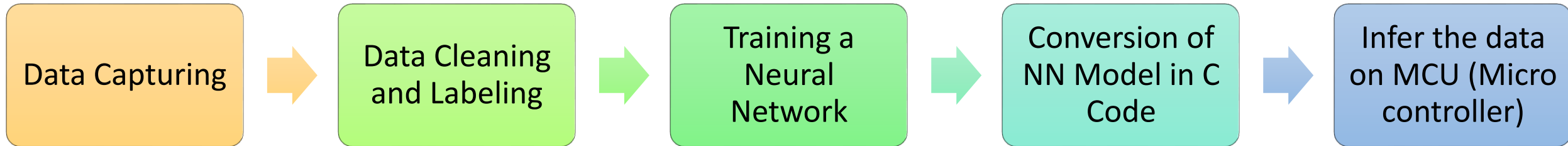


Tensorflow Architecture

- Pre-processing the data
- Build the model
- Train and estimate the model



Key Steps behind implementation of Embedded AI



1. Data Capturing

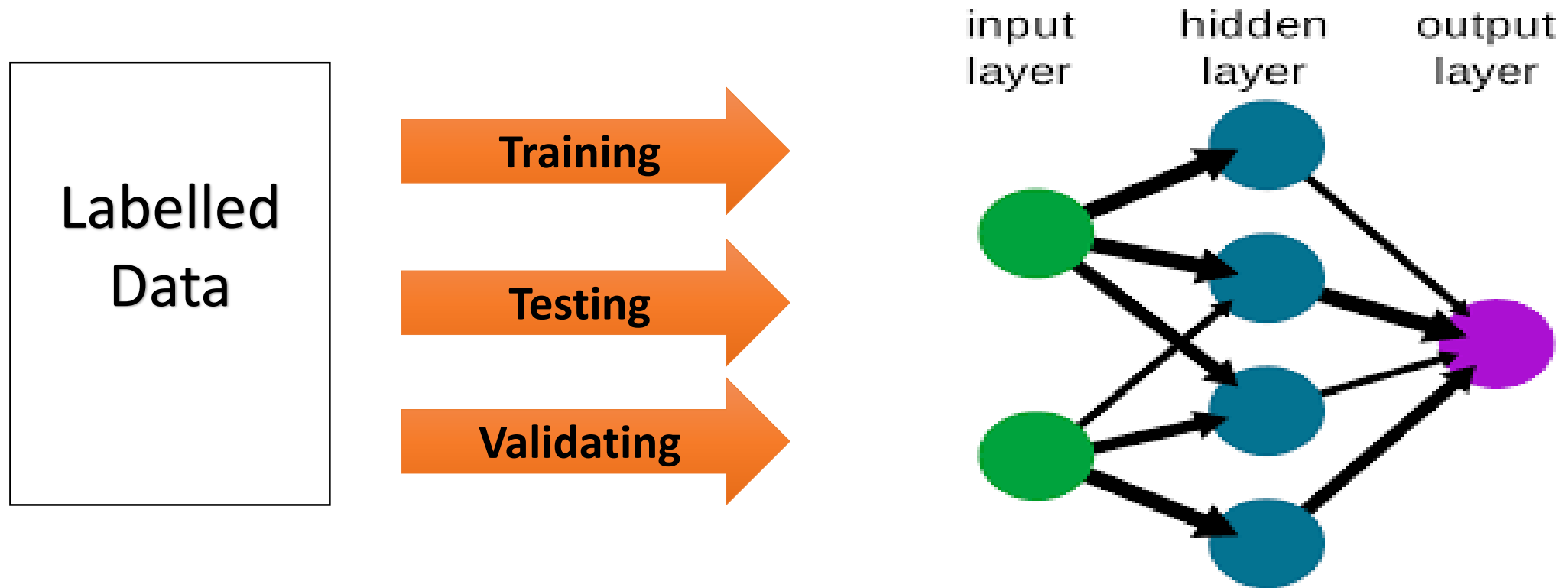
- Capture the environmental data via sensors.
- This data is used to train the Neural network.
- Data can be like acceleration, speed, sound or temperature etc.
- We will collect data via accelerometer sensors.



2. Data Cleaning and Labelling



3. Training a Neural Network Model



4. Conversion of NN Model into Optimized C Code for Microcontroller

Model.h5



STM32
Cube.AI



C Code



5. Infer the result using STM32

- We can interface the sensors with STM32 and can integrate the sensor code to the generated trained model.
- And then we can feed the live data from the sensors to the neural network inside the microcontroller, which has been already implemented in the generator to C Code of the model.
- After following these five steps, we can infer the real time data from any sensor and can perform any real time action inside a microcontroller and can realize the concept of edge AI / Embedded AI.



Hardware

- Stm microelectronics
NucleaoF446RE
- ADXL345 Accelerometer

Software

- Windows Environment
- Python Framework + Any IDE
- Tensorflow and keras
- STM32Cube
- STM32CubeAI
- AtolicTrueStudio IDE
- STM32 cube programmer



Thank You

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