Workshop on TinyML Engineering for IoT (KAUST) 🇸🇦

Sunday, Jan 5th – Pre-requisite (Half-day)

9:00-12:00: Working setup pre-requisites

Monday, Jan 6th – Intro

9:00-10:00: Workshop Opening and Schedule

10:00-11:00: Introduction to IoT

11:00-11:15: Break

11:15-12:15: Introduction to Embedded ML with Lab (Getting Started with Nicla Vision)

12:15-13:15: Lunch Break

Afternoon:

13:15-15:15: LAB #1 (Intro to RTLite, TensowFlow example)

15:15-15:30: Break

15:30-17:00: Challenge #1

Tuesday, Jan 7th – Video

9:00-10:00: Computer Vision in TinyML

10:00-10:30: FOMO Example and Bee Counting with FOMO (video)

10:30-10:45: Break

10:45-12:45: LAB #2 (Edge Impulse for Number Detection)

12:45-13:45: Lunch Break

Afternoon:

13:45-15:45: LAB #3 (Dates Classification/Egg Counting)

15:45-16:00: Break

16:00-17:00: Challenge #2

Wednesday, Jan 8th – Audio

9:00-10:00: Intro to LoRaWAN

10:00-10:30: Preprocessing for Audio

10:30 - 11:00: Keyword Spotting with Edge Impulse

11:00-11:15: Break

11:15-12:45: LAB #4 (Setting up the Arduino LoRa board, TTN)

12:45-13:45: Lunch Break

Afternoon:

13:45-15:45: LAB #5 (Keyword Spotting, Yes/No in Arabic)

15:45-16:00: Break

16:00-17:00: Challenge #3

Thursday, Jan 9th – MQTT

9:00-10:00: Intro to MQTT

10:00-11:00: LAB #6 (MQTT Lab)

11:00-11:15: Break

11:15 - 12:15: LAB #7 (MQTT with Nicla Vision)

12:15-13:15: Lunch Break

Afternoon:

13:15-15:45: LAB #8 (Hands-on Anomaly Detection)

15:45-16:00: Break

16:00-17:00: Challenge #4

Friday, Jan 10th – Platforms and visualization & Project work planning

9:00-9:30: Platforms and visualization

9:30-10:00: Virtualization using Docker

10:00-11:30: LAB #9 (TIG stack for data visualization)

Afternoon:

14:00-15:00: LAB #10 (Telegram bots)

15:00-15:15: Break

15:15-17:00: Project work planning

Saturday, Jan 11th – Project work

9:00-12:00: Project planning and documenting

Afternoon:

13:00-17:00: Project presentations