



# Powering the Physical AI Revolution: A System *Approach to Robotics* Impulse presentation and hands-on experience

STMicroelectronics & EBV Elektronik

April 13<sup>th</sup>, 2026

# Workshop Concept & Agenda



# Powering the Physical AI Revolution

## *A System Approach to Robotics*

### Workshop concept

Workshop with hands-on lab using ST's STEVAL-ROBKIT1 mobile robotics evaluation kit

Physical AI is transforming robots from scripted machines into intelligent, embodied systems that can see, understand, and act safely in the real world. This workshop combines a broad **system and application-level perspective** with a **practical, hands-on session** using STMicroelectronics' **STEVAL-ROBKIT1** platform.

Participants will learn how **sensing, edge AI, motion control, and power** come together in real robotic systems. They will then **apply this understanding directly** by configuring, programming, and running an autonomous mobile robot, including deploying AI models on an STM32 microcontroller.

This is not just a presentation - it is a **build, flash, and run** experience that connects system concepts to working hardware.

# Workshop overview

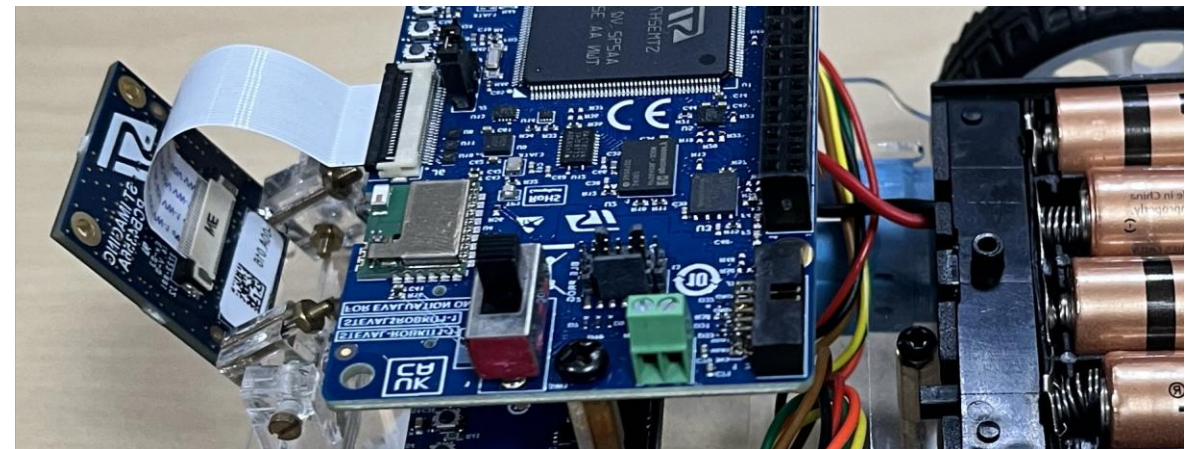
## Objective

- Share ST's perspective on the state of **Physical AI** for mobile robots, humanoids, and drones **in practice**.
- See **concrete application examples** based on ST's system approach, including:
  - Robotic Hand (Vision – Decision – Action)
  - Robotic Joint module
  - Multimodal sensing and imaging for drones
- Gain **hands-on experience** with the **STEVAL-ROBKIT1** robotics kit, from firmware build and flashing to autonomous navigation and AI integration.
- Learn how to use the **STM32 development ecosystem** (STM32CubeMX, STM32CubeIDE, STM32CubeProgrammer, STM32Cube.AI) in a robotics context.
- Leave with a clear view of **how to leverage ST platforms** and tools to accelerate their own robotic projects and potential collaboration paths with ST.



## Who should attend?

- Robotics startups** building mobile robots, manipulators, humanoids, or drones.
- System architects and embedded engineers** working on perception, control, or AI at the edge.
- Technical leads and innovation managers** exploring platforms to reduce time-to-market for new robot designs.
- Researchers and advanced students** engaged in embodied AI, motion control, or robotic systems integration.



# Revised Agenda Proposal

16 PAX per Session | Version as of April 7<sup>th</sup>

Time	Duration	Slot	Topic	Agenda	Notes
9:00 - 9:10	10 min	Set-up room			
9:10 - 10:20	70 min	ST-WS 1 <b>Hands-on session</b>	<b>From kit to autonomous robot - Working with STEVAL-ROBKIT1</b>	<b>Platform introduction</b> <ul style="list-style-type: none"> <li>Hardware tour: sensors, motors, control board, connectivity</li> <li>Overview of the provided firmware and software ecosystem</li> </ul> <b>Programming ecosystem</b> <ul style="list-style-type: none"> <li>Using STM32CubeMX, STM32CubeIDE, STM32Cube.AI, ...</li> <li>Project structure, configuration, and build process</li> </ul> <b>Guided Exercises</b> <ul style="list-style-type: none"> <li>AI at the Edge: Surface Detection with STM32Cube.AI+</li> </ul>	<b>REMARK</b> – Hands-on session requires preparation !!! See <b>"Pre-requisites   Documentation   Support"</b>  Bus Aalborg (10:15)
10:20 - 10:30	10 min	Break	Reset room and ROBKITs		
10:30 - 11:15	45 min	ST-WS 2 <b>Impulse presentation</b>	<b>From Hype to Reality: Physical AI and Humanoid robotics today</b>	<b>The Foundations of Physical AI: A system view on robots and drones</b> <ul style="list-style-type: none"> <li>Multimodal perception incl. MEMS, imaging, Time-of-Flight, AI</li> <li>Deterministic control with edge AI, real-time control, distributed intelligence</li> <li>High-efficiency actuation and power management</li> <li>Connectivity &amp; safe operations</li> </ul> <b>ST solutions and concrete application examples</b> <ul style="list-style-type: none"> <li>Vision - Decision - Action with the Robotic Hand platform</li> <li>Robotic Joint module as a scalable building block for arms and humanoids</li> <li>Multimodal sensing and imaging for drones (navigation, obstacle detection)</li> <li>Indoor – Outdoor positioning for robotics and drone</li> </ul>	
11:15 - 11:25	10 min	Break	Reset room and ROBKITs		
11:25 - 12:10	45 min	ST-WS 3 <b>Impulse presentation</b>	<b>From Hype to Reality: Physical AI and Humanoid robotics today</b>	<b>Repeat of ST-WS 2</b>	
12:10 - 12:20	10 min	Break	Reset room and ROBKITs		
12:20 - 1:30	70 min	ST-WS 4 <b>Hands-on session</b>	<b>From kit to autonomous robot - Working with STEVAL-ROBKIT1</b>	<b>Repeat of ST-WS 1</b> <b>REMARK</b> – Hands-on session requires preparation !!! See <b>"Pre-requisites   Documentation   Support"</b>	"Special Arrangement for Students" (12:15)
1:30		End			

# Required preparation for Hands-on Session participation






# Pre-requisites

## Required Software to be downloaded and installed\* (*Recommendation at least 1 week prior to workshop*)

1. STM32CubeIDE  
(<https://www.st.com/en/development-tools/stm32cubeide.html>)
2. STM32CubeMX  
(<https://www.st.com/en/development-tools/stm32cubemx.html>)  
*Note: The STSW-ROBKIT1 is not supported by STM32CubeMX v6.15.0. Kindly use STM32CubeMX v6.14.1 for development.*
3. STM32CubeProg  
(<https://www.st.com/en/development-tools/stm32cubeprog.html>)
4. STM32Cube.AI  
(<https://stm32ai.st.com/stm32-cube-ai>)
5. Also supported for IAR, Keil IDEs
6. STSW-ROBKIT1 SDK Downloaded  
(for workshop STSW-ROBKIT1 v1.1.0 to be used)
7. GIMP  
[GIMP - Downloads](#)

## Additional requirements / pre-requisites

1. STLINK-V3PWR [provided by ST on-site May 8<sup>th</sup>]
  - 14 pin programming cable
  - USB C type cable for ST-Link
2. STEVAL-ROBKIT1 for participants use during WS, incl: [provided by ST on-site May 8<sup>th</sup>]
  - Pre-assembled
  - 4 x 1.5v AA Alkaline Batteries for each kit
3. WiFi connection at the venue  
[provided by event on-site May 8<sup>th</sup>]
4. Mobile phone to install the STRobotics App
  - Apple  App Store for iPhone   
(<https://apps.apple.com/us/app/st-robotics/id6739212512>)
  - Android   
([https://play.google.com/store/apps/details?id=com.st.robotics&pcampaignid=web\\_share](https://play.google.com/store/apps/details?id=com.st.robotics&pcampaignid=web_share))



# Documentation and Support (1/2)

## STEVAL-ROBKIT1 | Product - STMicroelectronics

The screenshot shows the product page for the STEVAL-ROBKIT1. The page title is "STEVAL-ROBKIT1 | Product - STMicroelectronics". The breadcrumb navigation is "Evaluation tools > Solution evaluation tools > Sensing > STEVAL-ROBKIT1 >". The main heading is "STEVAL-ROBKIT1" with a green "ACTIVE" tag. Below it is "Evaluation kit for Robotics applications". There are two buttons: "Download databrief" and "Order Direct". The navigation tabs include "Overview", "Sample & Buy", "Documentation" (selected), "CAD Resources", "Tools & Software", and "Quality & Reliability". Under "Quick links", there are links for "Product Specifications", "Presentations", "Technical Notes & Articles", "Product Certifications", "User Manuals", and "Evaluation Board Terms of Use". A search bar is present with a "Reset" button. Below the search bar are "Select File Type" and "Select Date" dropdowns. At the bottom, it says "All resources".

The cover of the user manual for the STSW-ROBKIT1 Robotics evaluation kit. It features the STMicroelectronics logo and the reference number UM3456. The title is "Getting started with STSW-ROBKIT1 for STEVAL-ROBKIT1 Robotics evaluation kit". It includes an "Introduction" section with a detailed description of the kit's components and capabilities, and a "Key features" section listing various functionalities like AI model integration, precise navigation, and wireless communication.

[Getting started with STSW-ROBKIT1 for STEVAL-ROBKIT1 Robotics evaluation kit - User manual](#)

The cover of the user manual for the STEVAL-ROBKIT1 evaluation kit. It features the STMicroelectronics logo and the reference number UM3457. The title is "Getting started with STEVAL-ROBKIT1". It includes an "Introduction" section with a detailed description of the kit's components and capabilities, and a "Key features" section listing various functionalities like AI model integration, precise navigation, and wireless communication.

[Getting started with STEVAL-ROBKIT1 - User manual](#)



[steval-robkit1-evaluation-kit-for-robotics-applications.pdf](#)

# Documentation and Support (2/2)

Support Home - STMicroelectronics

https://www.st.com/content/st\_com/en/support/support-home.html

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Find answers to your questions and share insights with your peers and ST experts. Join discussion threads, read articles in the knowledge base, or increase your skills thanks to online courses from the academy.

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## Home - STMicroelectronics Community

https://community.st.com

ST

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## Welcome to the ST Community!

Looking for solutions and tips to overcome your design challenges? You're in the right place! Ask questions, join discussions, or follow online courses to increase your skills.

All community Search all content

109439 Members • 45583 Online • 751936 Posts

### Community activity

Sorted by: Most recent activity Sign In to Post

by fabr - Associate 47 2 0  
STPD01 and its I2C addresses  
2020-04-03 10:09 AM | Posted in Power management

by Boris\_L - Associate II 284 9 0  
A power board to the STM32 NUCLEO-64 401RE board to control two 3-phase BLDC motors?  
2020-02-03 9:40 PM | Posted in STM32 MCUs Motor control

Ready to get started?

Here are some useful resources to help you find your way around the community and feel comfortable using this website.

Welcome to the Community!