

## **On-Device AI: Developing an Android/Windows application using Qualcomm AI Hub computer vision model**

Qualcomm® AI Hub (<https://aihub.qualcomm.com/>) hosts a collection of state-of-the-art machine learning models optimized for deployment on Qualcomm® devices (e.g., phones, Laptops). The AI Hub includes computer vision models that are pretrained for various tasks, such as image classification, semantic segmentation, and object detection. It also provides the capability to download one of these models to a local device to deploy in an AI application.

In this project, each group of students will propose and develop an AI application using one or more pretrained AI Hub vision models. It is either an Android or Windows application that will be deployed on a device that Qualcomm will provide (see below). Each group must write and submit a one-page proposal about the application. The proposal must be reviewed and approved by your industrial mentor from Qualcomm before your group can start to develop the application. Overall, the proposed application must be novel (must be justified if a similar application already exists), realistic (to be verified by your industrial mentor), and appropriate for our class (in terms of topic, size).

The collection of AI Hub vision models can be found here:

<https://aihub.qualcomm.com/mobile/models?domain=Computer+Vision>.

Devices that Qualcomm will provide:

- Laptops (with Qualcomm Snapdragon X Elite processor) for Windows app development
- Samsung Galaxy S24 phones (with Qualcomm Snapdragon 8 Gen 3 processor) for Android app development

Reference:

1. Qualcomm AI Hub models: <https://github.com/quic/ai-hub-models/?tab=readme-ov-file#model-directory>
2. Sample applications: <https://github.com/quic/ai-hub-apps>
3. Deploy optimized models on real devices: <https://aihub.qualcomm.com/get-started>
4. Tutorial of LLM on-device deployment: [https://github.com/quic/ai-hub-apps/tree/main/tutorials/llm\\_on\\_genie](https://github.com/quic/ai-hub-apps/tree/main/tutorials/llm_on_genie)
5. AI Hub Resources: <https://aihub.qualcomm.com/resources>
6. AI Hub Training: <https://academy.qualcomm.com/course-catalog/AI-Hub-Training>
7. AI Hub Mobile Models: <https://aihub.qualcomm.com/mobile/models>