LAB7 APAI:
Deployment of Neural Networks on STM32

Alessio Burrello, Nazareno Bruschi

alessio.burrello@unibo.it

nazareno.bruschi@unibo.it

STM32Cube.AI: X-CUBE-AI

- STM32Cube.AI consists in a set of hardware and software tools to bring machine-learning models on STM32 devices
- X-CUBE-AI is an STM32Cube expansion package part of STM32Cube.AI ecosystem that automatically converts pre-trained models from most common frameworks (Keras, caffe, TensorFlow, …) into optimized C code
- Include optimized AI C libraries compatible with STM32 MCUs
- Optimize the memory footprint

- Extend the capabilities of STM32CubeMX

STM32CubeMX

- Graphical tool that allows an easy configuration of all STM32 processors, MCUs, and boards, generating the starting C code for ARM cores
- Configure pins, GPIOs, UART, System Clock, …
- Can be extended with several packages: such as X-CUBE-AI

- Extend the capabilities of STM32CubeIDE

STM32CubeIDE

- Rich C/C++ development platform for STM32 MCUs
- Code generation
- GCC-based compilation
- GDB-based debug

- Well integrated with the whole STM32Cube ecosystem

Assignment

- 3 hours together in LAB1
- 1 week to deliver all the requirements
- Open-chat on Teams for late questions

- Deadline: 16/12/2021 at 4 PM
- Usual ranking policy

- https://www.github.com/EEESlab/APAI-LAB07-Deployment-STM32.git

References

- https://www.st.com/content/st_com/en/ecosystems/artificial-intelligence-ecosystem-stm32.html
- https://www.st.com/en/embedded-software/x-cube-ai.html
- https://www.st.com/en/development-tools/stm32cubemx.html
- https://www.st.com/en/development-tools/stm32cubeide.html