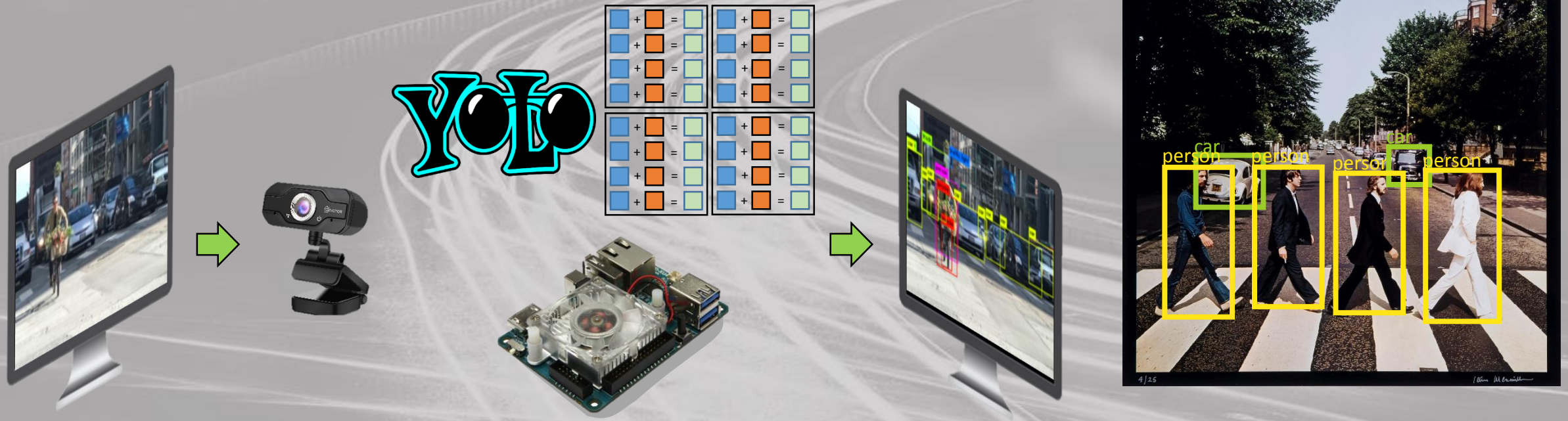
Towards Real-time Object Detection on Mobile Devices



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Problem

High performance GPU

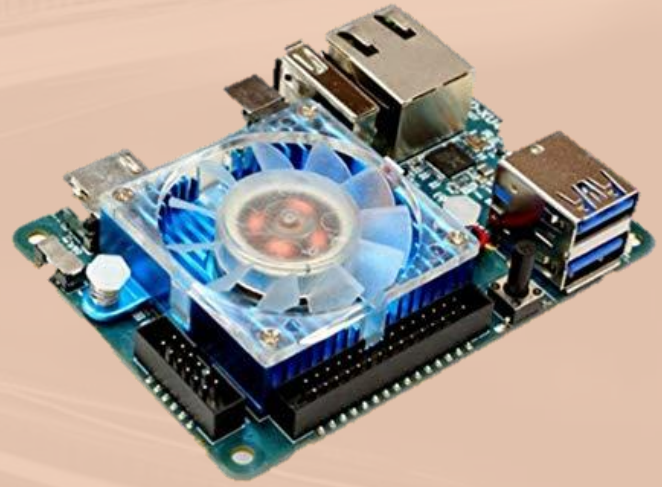
EXPENSIVE

HIGH power consumption

FAST

VS

Mobile device



CHEAP

LOW power consumption

SLOW

We challenge to run CNN on mobile devices in REAL real-time

What We Did

Current State-of-the-art

Darknet / TensorFlow / Caffe Framework

Matrix Multiplication Library for CNN (CUDA)

Our Work

Without Framework

For all kinds of Mobile GPUs

Matrix Multiplication Library for CNN (OpenCL)

Our Library

CLBlast VS Non-Square Matrix Optimization

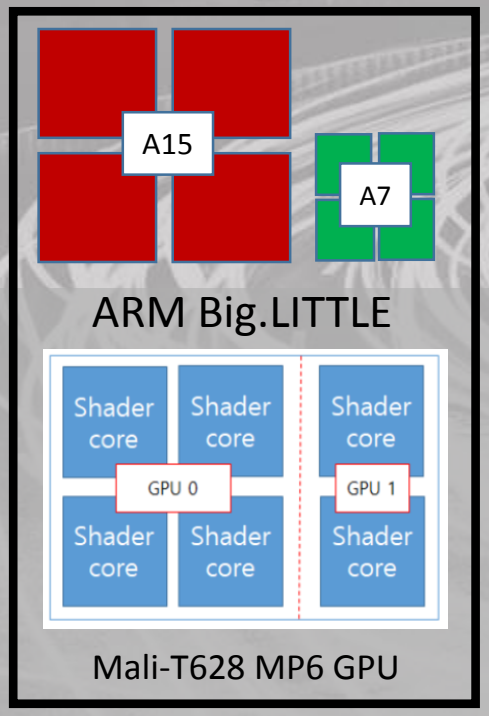
1.3 times faster than CLBlast

At Our Demo

Input : VOC Images

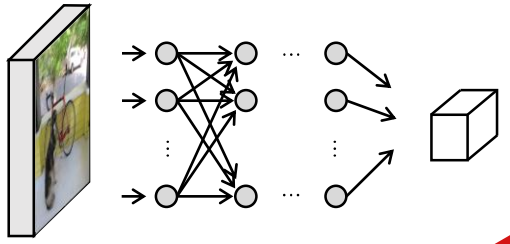
Input : Camera

Mobile Device



Exynos 5422

CNN



Real Detection Challenge !

Real Detection

Result