

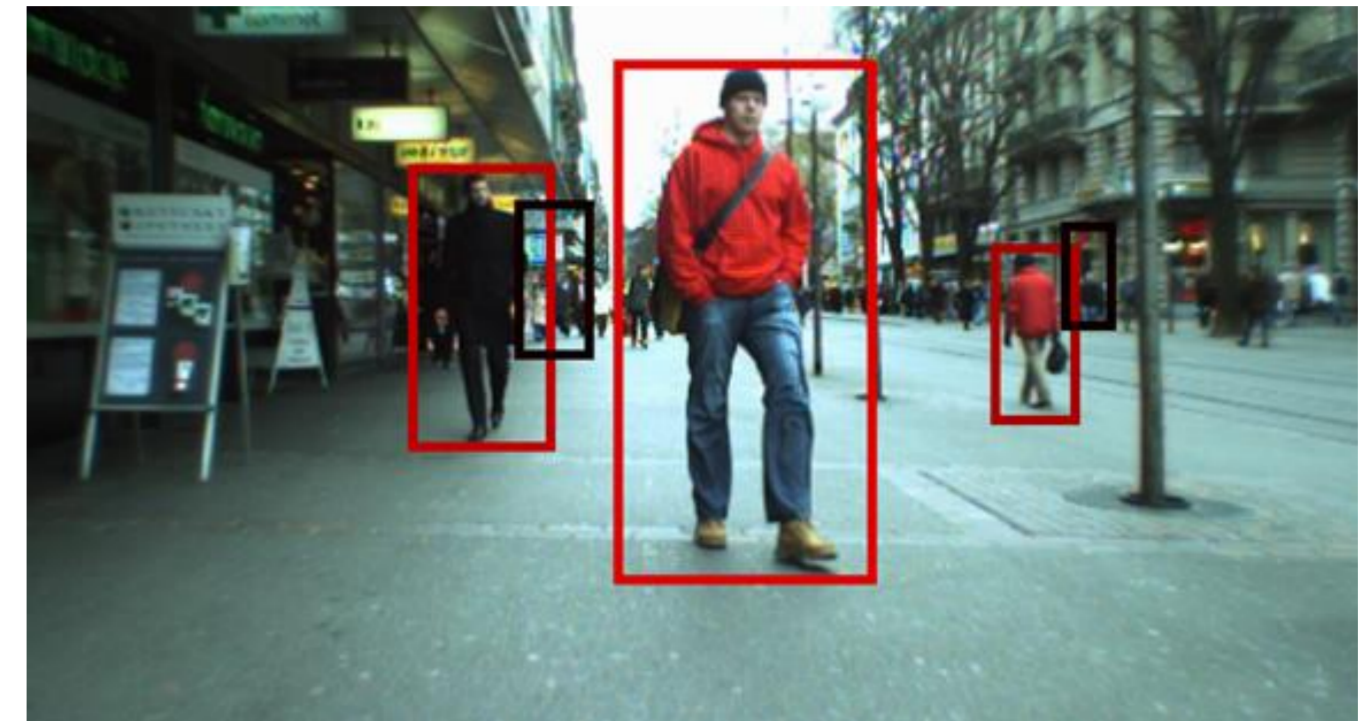
Towards Ubiquitous Low-power Image Processing Platforms



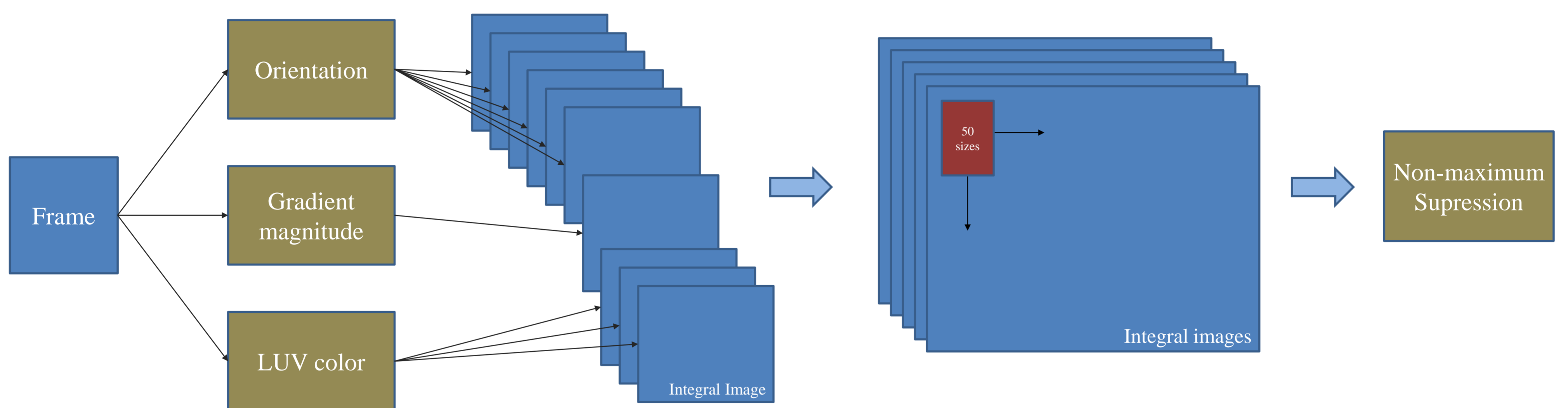
Horizon 2020

The Automotive Use-case

- Implements pedestrian detection
- Used for collision avoidance
- Based on Viola-Jones object detection
- Operates on 640x480 24-bit images
- Algorithms from paper by Benenson, Mathias, Timofte, & Van Gool, 2012



The Algorithm

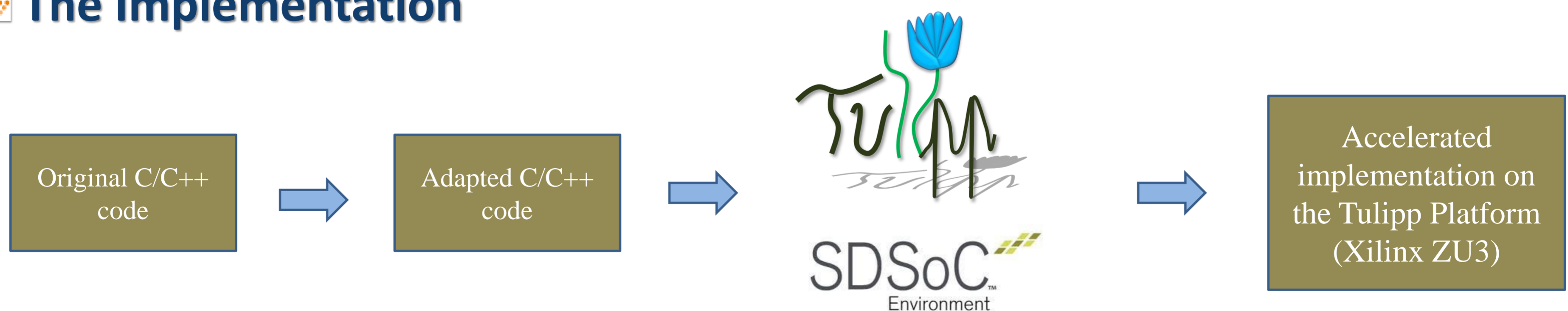


Create 10 integral images based on gradient, orientation and color from the original frame

Sweep 50 different sizes of the trained classifier over all image positions

Suppress multiple detections

The Implementation



Reference running on PC platform, ~150 W, 10 s/frame

Tulipp platform, ~15 W, 66 ms/frame

Partners



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