MACHINE VISION &
HIGH-SPEED IMAGE PROCESSING

**Unmanned Systems**

*Project Management*

*Systems Engineering*

*Electrical Engineering*

*Software Engineering*

# REAL-TIME OBJECT DETECTION APPLICATION FOR LIVE VIDEO CAPTURE ON A NVIDIA TX1/TX2

## APPROACH

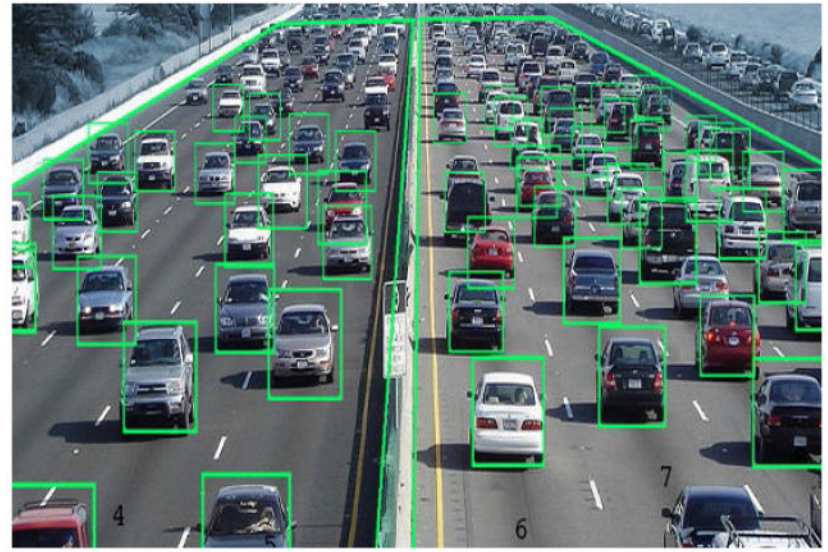
- Developed REST interface to configure and receive telemetry
- Created custom application running on TX1/TX2
- Integrated open-source libraries for video capture and display with GPU-accelerated hardware platform

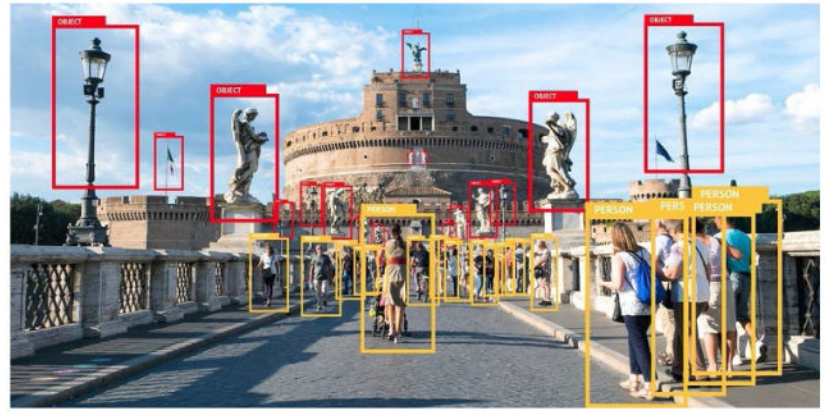
## RESULTS

- Demonstrated system capability through live capture of 4K video with output video overlaying boxes on objects detected
- Provided real-time performance calculations of object telemetry and frame rate
- Increased frame-rate performance versus a CPU-only platform

## KEY TECHNOLOGIES

- Deep neural network
- Nvidia DetectNet on TX1/TX2
- C++
- GPU algorithms on CUDA
- Ubuntu 16.04
- GStreamer
- Parallel processing





ALTEN TECHNOLOGY