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PixMin™ Obstacle Detection: a driverless vehicle use-case

This example shows a use-case where PixMin can triage imagery at remote sensor sites in real-time, upstream of telemetry. Being able to do so can meet two needs. First, low transmission bandwidth may be necessary. Second, immediate remote sensor control may be necessary. The figure on the right shows how a driverless car could detect an ice hazard and relay detection information quickly enough to alert nearby vehicles. In this case, sensors on a driverless car could stream imagery to an on-board processor, which could then triage the imagery in real-time.
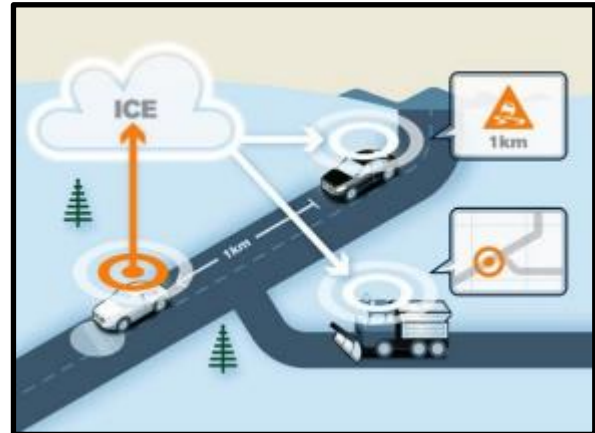
The triaged imagery could then trigger immediate, on-board vehicle control. Triaged imagery "chips" could also be immediately uploaded to the cloud via a low bandwidth satellite channel. Cloud-based processors could then validate the hazard detection, download the hazard information to nearby vehicles, and update driverless control road maps accordingly—all within milliseconds.
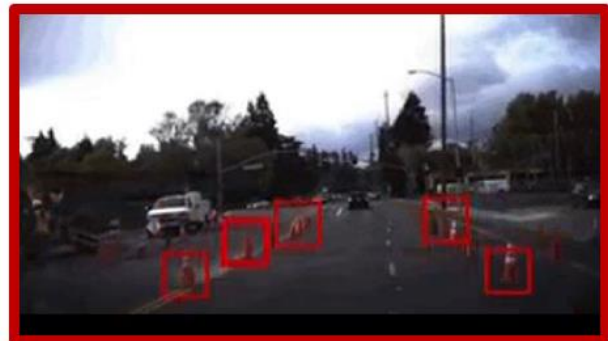
The above images show one input snapshot and a corresponding PixMin output "alert map" for this example. The image on the left shows one snapshot from a driverless car camera, triggered at less than one frame per second. The image on the right shows an alert map that PixMin produced while keeping up with the triggering frame rate. PixMin was able to automatically detect the construction cones in milliseconds.

Instead of using PixMin, large teams of machine learning experts spent thousands of analyst hours, spanning years of development time, to produce an operational solution Often, however, engineers have far fewer resources and they require much faster turnaround time. That's where we come in. We would be happy to discuss your related needs. Feel free to contact us.