Adaptive Driver Assistance: Context-based Approach to Pedestrian Safety

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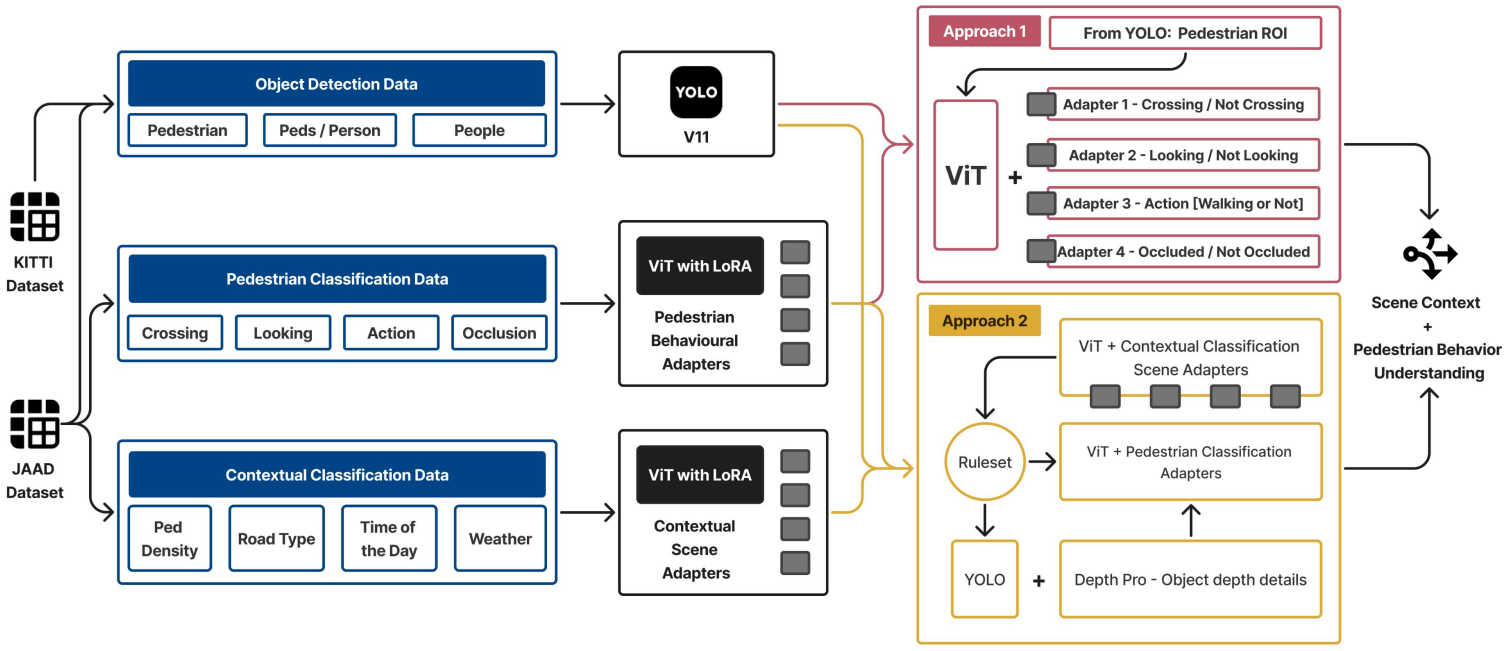
The Problem: Pedestrian Safety Crisis 🚶⚠️

- Every year, 70,000 pedestrians are injured, and a pedestrian is killed every 70 minutes.
- Over 25% of these accidents happen because drivers aren't alert enough.
- Current systems fail to understand pedestrian intentions—they only detect pedestrians.

Our Solution: Adaptive Driver Assistance System 🚗💡

- **Context-Aware Alerts:** Detects pedestrian behavior (crossing, standing, looking, etc.) and adapts to real-world conditions like weather 🌧️, time of day 🌙, and road type 🛣️.
- **Robust Data:** Trained on 2 powerful datasets (JAAD and KITTI), providing 100+ hours of footage and 40,000+ object detections to ensure accuracy in any situation.
- **Efficiency at Its Core:** A modular, plug-and-play based system that uses only the necessary adapters, reducing both computation and storage needs without sacrificing accuracy.
- **Advanced Training:** Chosen the top 8 adapters from a pool of 40, created by training 8 adapters using 5 different techniques each.



Key Impact: Efficiency + Real-Time Performance 🚀⚡

- Over 90% Accuracy in detecting and classifying pedestrian behavior in real time.
- 50% More Efficient in computational power and storage compared to traditional systems.
- Sub-0.5ms response time on a V100 GPU, 10-20ms on a standard CPU—ensuring instant, real-time driver assistance, making it easily deployable in low-end vehicles.