A hardware/software codesign framework for vision-based ADAS

**Vision-based ADAS Systems**

- Surrounded View
- Rear View Camera
- Rear Cross Traffic
- Blind Spot Detection
- Lane Departure Warning
- Intelligent Headlamp Control
- Traffic Sign Recognition
- Forward Collision Warning
- Intelligent Speed Control
- Pedestrian Detection

**User Conceptual Designer**

1. Data Source
2. RGB to Gray
3. Video Stabilizer
4. Motion Detection
5. BLOB Detector
6. Classifier
7. Video Out

**Automatic Hardware Conversion**

- JTAG
- NIOS II
- BUS Controller
- NIOS II
- BLOB
- Stabilizer
- RGB-Gray
- Motion Detection
- Classify
- Display Out
- Display

**FPGA**

- Memory
- Memory Controller

**Flowchart**

1. Select FPGA device
2. Select de template
3. Design space exploration
4. Simulate
5. Generate Quartus design

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Full flow using the framework

Thank you!

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