Training based on ISO/PAS 21448 and other relevant standards

This two-day training course describes emerging methods and frameworks for the development of safe autonomous vehicles. Both Autonomous Vehicles (AVs) and Advanced Driver Assist Systems (ADAS) will be covered. Much of the course describes methods and tools for the Safety of the Intended Functionality (SOTIF), based primarily on the ISO/PAS 21448 standard. Additionally, key concepts related to autonomous vehicles are presented from the ISO 26262 and UL 4600 Standards.

<table>
<thead>
<tr>
<th>Automation level</th>
<th>Functions</th>
<th>Vehicle control</th>
<th>Scene monitoring</th>
<th>Fallback</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - None</td>
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<tr>
<td>1 - Assist</td>
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<tr>
<td>2 - Partial</td>
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<tr>
<td>3 - Conditional</td>
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<tr>
<td>4 - High</td>
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<tr>
<td>5 - Full</td>
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Indicates more control is given to vehicle at higher levels
Objectives

Upon completion of this workshop, you will be able to:

- Understand the major emerging frameworks for safety engineering of ADAS and AV systems
- Characterize potential hazardous scenarios using safe/unsafe and known/unknown descriptors from ISO/PAS 21448
- Evaluate risks in scenarios based on safety of the intended function (SOTIF)
- Write a function and system specification for ADAS and AV systems, and update/modify that specification as needed
- Evaluate and describe potential triggering events for SOTIF hazards
- Define verification and validation plans for a SOTIF safety case, including the selection of appropriate techniques and measures
- Define targets for validation of ADAS and AV functions to address unsafe-unknown hazards
- Build a framework for formal review and release of ADAS and AV systems using the SOTIF framework
- Integrate SOTIF activities with functional safety activities as defined in ISO 26262
- Integrate key concepts and methods from the UL 4600 Standard into an overall safety plan
- Address hazards posed by wrong behavior of artificial intelligence including machine-learning software and related functions

Target audience

- Autonomous vehicle developers including both hardware and software developers
- Simulation engineers working in ADAS and AV verification
- Test and validation engineers
- Project and product leaders
- Compliance engineers

Why choose kVA by UL?

Our team’s expansive knowledge of the automotive product development lifecycle sets us apart in the functional safety industry. From hazard analysis to functional design and validation target-setting, the engineers at kVA by UL understand safety for complex electronic systems.

Expert trainers – kVA by UL’s trainings provide an in-depth overview of the methodologies used in the ISO 26262 and ISO/PAS 21448 Standards. Our trainers are experienced automotive engineers who have designed and validated real-world automotive systems at major automotive companies worldwide.

Advisory support – Our services span across autonomous vehicles, connectivity of electronic modules and infotainment, semiconductors, cybersecurity and robotics.

For more information, call 1.864.630.5373, email: kvasales@ul.com or visit kvausa.com.