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Nandita Mangal

Platform Owner – HMI Vehicle Experience

DESIGN IN AUTOMOTIVE AI SOLUTIONS

Aptiv Addressing Mobility's Toughest Challenges

APTIV PROVIDES END-TO-END SOLUTIONS THAT ALLOW US TO COMMERCIALIZE NEW MOBILITY

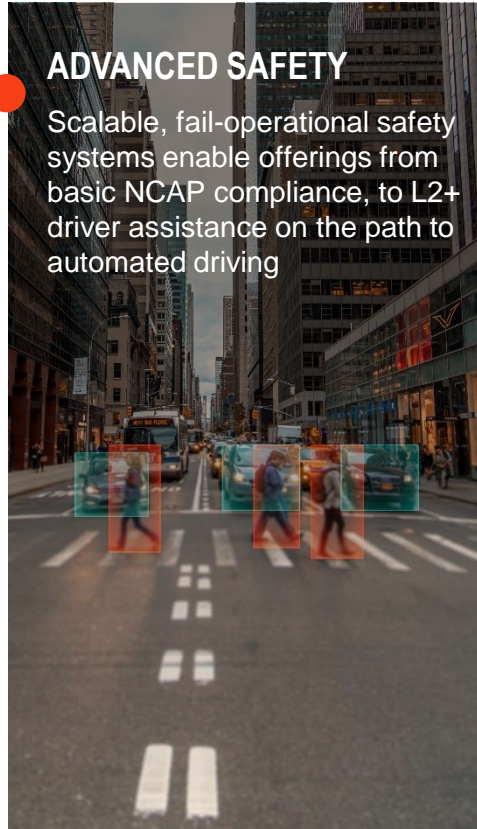
We are a global technology company

that develops **safer, greener and more connected**

solutions, which enable the future of mobility.

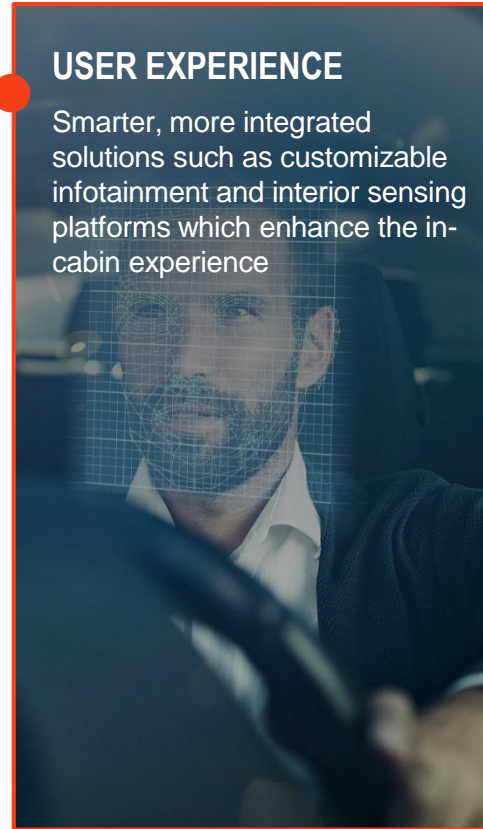
ADVANCED SAFETY

Scalable, fail-operational safety systems enable offerings from basic NCAP compliance, to L2+ driver assistance on the path to automated driving



USER EXPERIENCE

Smarter, more integrated solutions such as customizable infotainment and interior sensing platforms which enhance the in-cabin experience



CONNECTIVITY & SECURITY

Systems that control the comfort, security and convenience of a vehicle and provide car connectivity



Driver Needs and Automation

TRUST CALIBRATION

Altered Behaviors

DRIVER IN THE LOOP

Situational Awareness

TRANSPARENCY

Enhanced Feedback
and Expectation Matching



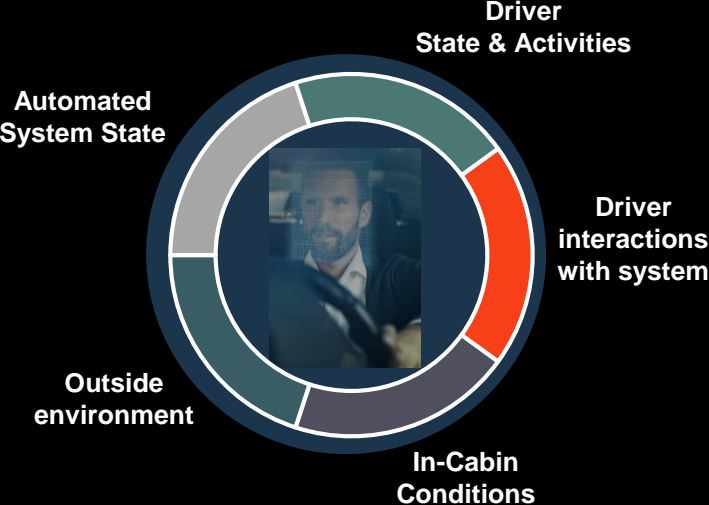
As automation increases, it becomes even more important to understand the driver's state, behaviors, intention, interactions with the vehicle as well as the underlying holistic context in which the system is operating.

Contextual models of humans

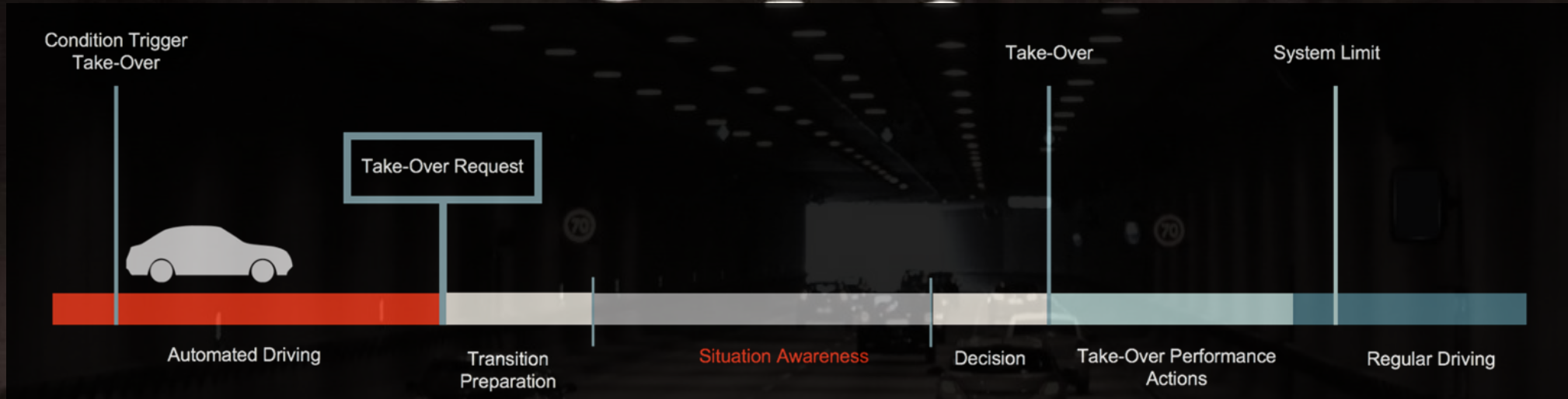
AI in human “context”



SIMUSAFE: Advances VR based vehicle safety research



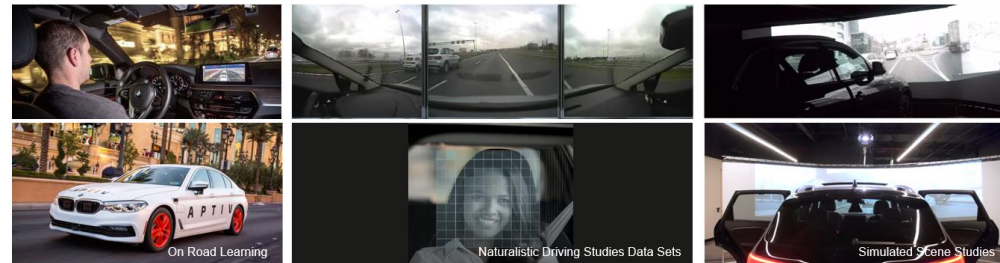
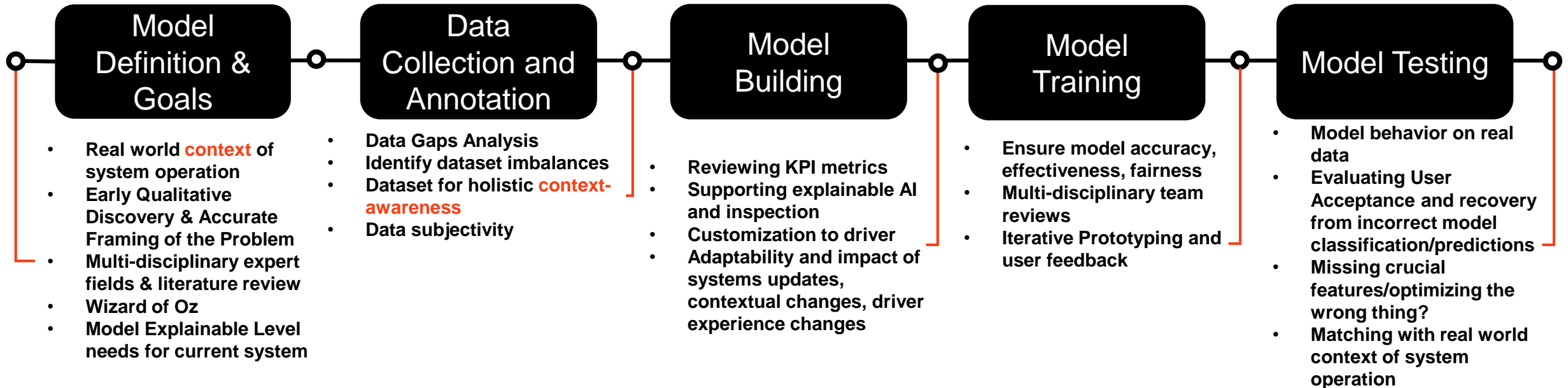
Transition of Control



Before Take-Over Request	Transition Preparation	Situation Awareness	Decision	Take-Over Performance
<ul style="list-style-type: none"> • Condition Trigger Complexity • Mental Model, HMI • Trust & Comfort • Length of Ride 	<ul style="list-style-type: none"> • Non-driving task • Cognitive Workload • Distraction • Body Position • HMI 	<ul style="list-style-type: none"> • Traffic Density & Patterns • Road Complexity • HMI • Driver System Experience 	<ul style="list-style-type: none"> • Assessed Situation • Cognitive Bias • Alternatives • Estimate Maneuver 	<ul style="list-style-type: none"> • Complexity of maneuver • Situational Awareness • Longitudinal Measures • Take-Over Response Time

Design Techniques in Machine Learning Process

Imparting Human Traits, Concerns, Latent Knowledge, Tacit knowledge into Models



Thank you.