Evaluating Challenges at the Intersection of Standard-Setting and Fast-Developing Technology

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Today's Presenters

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Artificial Intelligence, Machine Learning and Robotics

Building Trust in New Technology

Automated Driving

Artificial Intelligence, Machine Learning and Robotics

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How would you define "driving safely" for an AV?
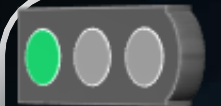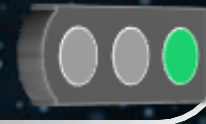
Avoid collisions at all costs?

What do humans do?

Explicit Traffic Rules

- Come to complete stop at red lights
- Don't cross a double-yellow line
- Obey posted speed limits
- Yield to other road users when posted

Set limits on vehicle operation

Implicit Rules of the road

A **general set of principles** applied by the driver

- Keep a safe distance from the car in front of you
- Drive cautiously under limited visibility
- Don't drive slow in the fast lane
- Don't cut off other drivers

Flexible, culturally dependent

Responsibility Sensitive Safety

An open, transparent, technology neutral **safety model** for autonomous driving

RSS digitizes the implicit rules of the road, **providing a check on AV decision-making, and a technology-neutral performance benchmark for regulators**

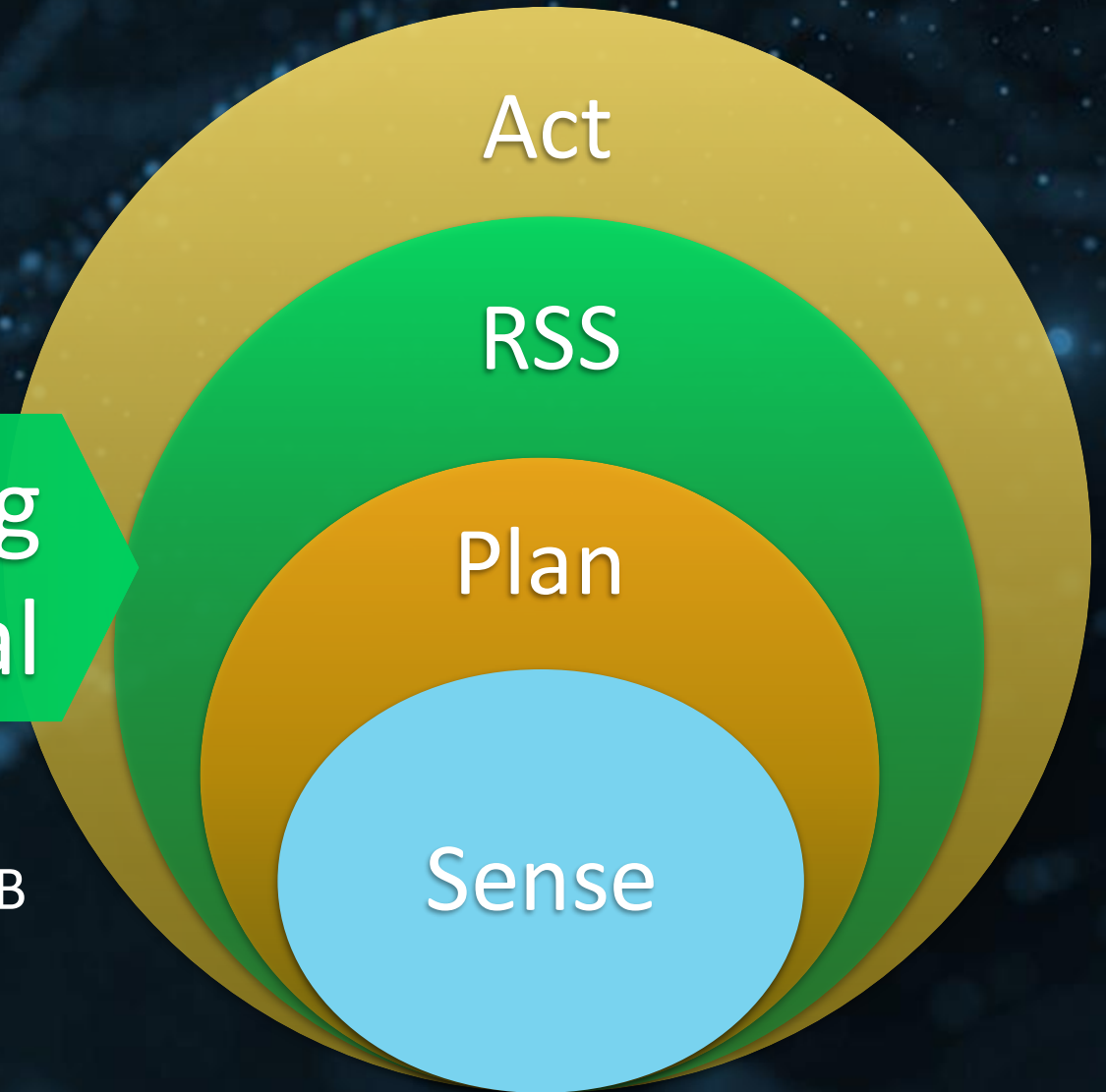# 4 Facets of Automated Driving

Plan

- Analyze the raw material, and consider actions
- *Propose* a Decision

RSS is a Planning Safety Seal

Planning is how you get from point A to point B

RSS keeps you safe along the way

Act

RSS

Plan

Sense

China-ITS industry alliance standard

C-ITCS ICS 03.220.20:

The world's first RSS-based standard

"Technical Requirement of Safety Assurance of AV Decision Making"

Customized for China Market

IEEE P2846

Formal Model for Safety Considerations in Automated Vehicle Decision Making

ISO 484

Safety First for Automated Driving

ISO 21448

Safety of the Intended Functionality

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International Standardization Efforts

46 Active Standards

37 Active Standards

59 Active Standards

193 Active Recommendations and Standards

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Standardization of Communications/Operations

> **BVLOS**

> **Inter-Vehicle Communications**

> **Collision Avoidance**

> **Environmental Impact Mitigation**

> **Urban Corridor Mapping**

> **Testing**

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Development and Integration of Open Systems

Open Source Autopilot Development

Open Hardware Development

Open Communications Stack Development

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Development and Integration of Open Systems

>   **Certifications Developed with Partners (type; production; airworthiness)**

>   **Mass Transit Integrations**

>   **Remote ID**

>   **Unmanned Aircraft System Traffic Management (UTM)**

CLE Code Word

Questions?

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