Focus Group on AI for autonomous and assisted driving (FG-AI4AD)

FGAI4AD-03
Automated driving safety data protocol – Practical demonstrators

ITU-T

Technical Report

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

03

Focus Group on AI for autonomous and assisted driving
(FG-AI4AD)

FGAI4AD-03
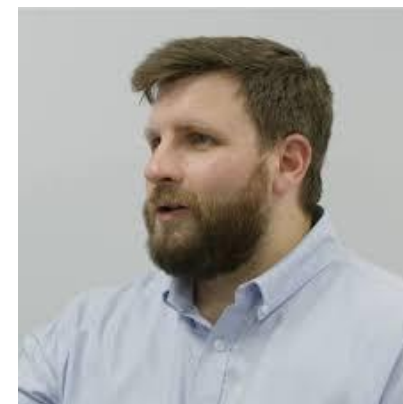**Automated driving safety data protocol –**
Practical demonstrators

International
Telecommunication
Union

Editors

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robotTUNER   / Green Dino

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Three practical demonstrators of the <u>behavioural monitoring and evaluation</u> of autonomous or assisted driving software:

SMART MOBILITY LIVING LAB	**United Kingdom**
CETRAN	**Singapore**
COLUMBUSS	**The Netherlands**

COnnected Level 5 UnManned BUSeS

Enhance public transport capacity by lowering the cost per kilometre per person and speed up licensing with a **free-of-charge** **open-source** auto-pilot and auto-examiner.

macro-buses   micro-buses   mini-buses

COLUMBUSS
The Netherlands

Phase 1 bus depot & shadow driving
Phase 2 bus lane
Phase 3 first & last mile

provincie groningen

METROPOOLREGIO
ROTTERDAM DEN HAAG

robotTUNER

COLUMBUSS
safety metrics

The Netherlands NATIONAL DRIVING PROCEDURES

[Legal metrics](#) for driving schools, examiners, drivers & police

Uniform methodology for **risk mitigation** by human drivers.

Human driving performance as the reference model for AVs

COLUMBUSS
safety risk metrics

COLUMBUSS uses the Green Dino **Safety State Framework**, a validated safety risk metric for human drivers based on the National Driving Procedures.

To determine the (safe) driving style, safety performance indicators SPIs are combined into key performance indicators KPI:

General summary	
Driving skill	8.3
Safety score	5.9
Avoiding risks	3.3
Economical driving	2.3

The global **Drive Safety Score DSS** is constructed with; "Ignoring Traffic Rules", "Inappropriate Distance", "Inappropriate speed", "Inappropriate steering" and "TrafficAccidents" safety risks.

Safety Report

Click on the lesson date to view the DrivingStyle Profile.

Green Dino	12 Apr
General summary	
Driving skill	8.3
Safety score	5.9
Avoiding risks	3.3
Economical driving	2.3
Summary by categories	
Vehicle control	7.2
Observation and anticipation	7.5
View behaviour	7.3
* before turning left	8.0
* before turning right	4.0
* before going straight on	10.0
* before entering a roundabout	10.0
* before braking	3.5
* scanning	8.2
Keeping safe speed	0.0
Keeping fluent speed	9.6
Keeping traffic rules	10.0
Avoiding traffic accidents	7.7

Vehicle control	
Position inside lane	5.7
Smooth steering	6.1
Precise steering	7.1
Shifting up in time	3.7
Shifting down in time	9.0
Observation and anticipation	
Keeping distance to preceding car	4.8
Smooth braking	7.7
Keeping safe speed	
On straight road segments	0.0
In curves	7.8
When approaching intersections	10.0
* and need to stop	10.0
* turning right	10.0
* going straight	10.0
* turning left	10.0
When crossing intersection	8.2
* turning right	4.9
* going straight	10.0
* turning left	9.6
On roundabouts	2.3

Keeping fluent speed	
On straight road segments	9.4
When approaching intersection	7.0
When crossing intersection	9.9
On roundabouts	9.0
Traffic rules	
Stopping for traffic lights	10.0
Indicators usage on intersections	10.0
Indicators usage on roundabouts	10.0
Accidents (number)	
Collisions with other traffic	0
Onesided collision	0
Offroad	0
Partially offroad	1

COnnected Level 5 UnManned BUSeS

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